Chapter 3 Survey Clean-up Procedures

MX EDITING PROCEDURES

This section is not intended to replace the MX Editors procedure defined in the MX manual. It is described here for the purpose of informing a MicroStation user on the process and the evolution of the file naming.

GENERAL INFORMATION

Standard Naming

The department has a standard naming convention for all drawing files. The main reason for this is that many of our standard *plan view* type drawings for the department have the existing topography information referenced into them by default. This default reference only works when the files are named correctly and when they exist in the correct location.

Please follow procedures outlined below to adhere to these standards. Click this link for a complete list of MDOT Standard File Names or visit our website at www.maine.gov/mdot/cadd-support/microstation/std_filename.php.

Preserving Original Files

The Survey Folder is where the "Original" Survey files are stored. The folder is Read-Only to everyone except for the Survey Editors. MicroStation Survey clean up will be done in the **Topo** folder, unless network speed is an issue, and at which point, it can be copied locally.

- Refer to $$ Regional Workflow documentation for working with files locally. Please consult CADD Support for assistance.

INITIAL TOPOGRAPHY

Step One: MX Editing

After an initial survey is completed, the Survey Editors will do the necessary MX editing. This editing will consist of the same editing done prior to this document.

Step Two: Create MicroStation Drawings

Create the following drawings and place them in the y:\pin\####\##\Survey\Msta folder. Please be positive that you have the latest MX configuration that utilizes the most up-to-date MicroStation seed files.

3DtopoMMDDYY.dgn

This is the 3D topography file that has only been MX edited.

ⓘ ***Please use a 6-digit date without separators. (i.e. 3Dtopo021402.dgn)***

3DmappingMMDDYY.dgn

This is the 3D Aerial Mapping file that has only been MX edited.

ⓘ ***Please use a 6-digit date without separators. (i.e. 3Dtopo021402.dgn)***

Origtext.dgn

This is the raw text that describes the topographical features. This will include both ground survey and Aerial Mapping text (if there is any).

- The drawing resides at elevation 0.1000, slightly above elevation 0.0000.

Points.dgn

This is all of the points for the topographical features.

- The drawing resides at elevation 0.0000. It will be regenerated with all additional surveys.

Contours.dgn

This drawing is the 3D contour model that includes both the ground survey and Aerial Mapping.

- It will be regenerated with all additional surveys.

Triangles.dgn

This drawing is the 3D triangles model that includes both the ground survey and Aerial Mapping.

- It will be regenerated with all additional surveys.

OrigWetlands.dgn

This drawing is the 3D wetland drawing. It includes all wetland strings identified by a Biologist and flag text associated with them.

Step Three: Update Status Report

Add notes to the **Status.rpt** file located in your PIN's Survey\MX folder.

Step Four: Communication

At this point, send your correspondence to the proper contact in the desired MDOT Program division (i.e. Urban Arterial Program, Bridge Program, etc) to notify them that the survey files are available, however need to be cleaned-up in MicroStation.

TOPOGRAPHY UPDATES

Step One: MX Editing

After the additional survey is completed, the Survey Editors will do the necessary MX editing. This editing will consist of the same editing done prior to this document.

Step Two: Create New MicroStation Drawings (Adds)

Create the following drawings and place them in the y:\pin\####\##\Survey\Msta folder. Please be positive that you have the latest MX configuration that utilizes the most up-to-date MicroStation seed files.

Origtopoadd#.dgn

This file will consist of the updated 3D topographical features and a boundary string if this project utilizes Areial Mapping.

Origtextadd#.dgn

This is the updated text that describes the updated topographical features and/or Areial Mapping.

- The text drawing resides at elevation 0.1000 m, slightly above elevation "0.0000".

Wetlandsadd#.dgn

This drawing is the additional 3D wetland drawing. It includes all wetland strings identified by a Biologist and flag text associated with them.

Step Three: Regenerate Points, Contours & Triangles

The following drawings require editing and regeneration in MX to update and display the latest information. This editing work will consist of the same procedures done prior to this document. All files will reside in the Survey\Msta folder.

Points.dgn

This will consist of all the original points and all additional points for all of the topographical features.

Contours.dgn

This drawing is the 3D Contour model. This will incorporate the original Contour model with the new Contour model (both ground survey and Aerial Mapping), providing one complete, seamless model.

Triangles.dgn

This drawing is the 3D Triangle model. This will incorporate the original Triangle model

with the new Triangle model (both ground survey and Aerial Mapping), providing one complete, seamless model.

Step Four: Regenerate Topo Model

In MX, combine the old ground model with the new ground model and create a file called **3DtopoMMDDYY.dgn** (supplying current date in place of MMDDYY) and place it in the Survey\Msta folder. Leave the ZZ string in the file to help identify the area that has been updated.

- This file contains the most complete ground topographical features as of the date in the filename.

ⓘ ***Use a 6-digit date without separators. (i.e. 3Dtopo021402.dgn)***

Step Five: Recreate Mapping Model

If this is a mapping project, and additional ground survey was completed, remove the portion of the mapping model defined by the boundary string and create a new file called **3DmappingMMDDYY.dgn** (supplying current date in place of MMDDYY) and place it in the Survey\Msta folder. Leave the boundary in the file to help identify the area that has been updated.

ⓘ ***Use a 6-digit date without separators. (i.e. 3Dtopo021402.dgn)***

Step Six: Update Status Report

Add notes to the **Status.rpt** file located in your PIN's Survey\MX folder.

Step Seven: Communication

At this point, send your correspondence to the proper contact in the desired MDOT Program division (i.e. Urban Arterial Program, Bridge Program, etc) to notify them that the updated survey files are available, however they need to be cleaned-up in MicroStation.

ⓘ ***The end product, in the Survey\Msta folder, is to have all individual topographical files preserved as historical data, enabling someone to track what was done and when. This folder also contains a combined, topographical drawing called 3DtopoMMDDYY.dgn, which contains the complete ground topography (old and new) as of the date indicated in the filename. It also may contain the latest 3DmappingMMDDYY.dgn, which contains only the mapping data with a hole(s) indicating where ground survey was supplied.***

Step Eight: Create Zip Files For A Design Consultant (If Necessary)

If this project is going to be done by a design consultant, create a zip file and place it in the Survey\Consultant folder. Use the PIN number and Town Name in the filename (i.e. 8467Topsham.zip).

Breakdown of files sent to a consultant

MX files:

Traverse.inp file(s) contains the adjusted Traverse & generates the Traverse Model.

Ground01.inp file(s) contains the topographic features from the field survey.

Ground01.out file(s) contains the resulting X, Y, Z coordinates & associated point number above data.

Ground01.inc file(s) generates the topographic features with associated text.

Ground01.rep file(s) shows the labels X, Y, Z coordinates with associated text.

Contours.inp generates the Triangles & Contour Models.

Points01.str & Points01.txt file(s) generates the Point Numbers as surveyed from the field.

♫ MX users may need to process multiple sets of numbered files (i.e. ground01.inp through ground10.inp) as opposed to running the highest numbered file.

MicroStation files:

Topo.dgn is the Survey (cleaned-up and flattened). This file, if cleaned-up, is located in the **topo** folder of the PIN number.

Text.dgn is the text associated with Survey data (cleaned-up and flattened). This file, if cleaned-up, is located in the **topo** folder of the PIN number.

Points.dgn are the field Survey point numbers. This file resides in the Survey\MSTA folder.

Contours.dgn is the 3D contours drawing. This would also include Aerial Mapping Contours. The file resides in the Survey\MSTA folder.

♫ There is a contours drawing in the topo folder also, but it has been flattened.

3DtopoMMDDYY.dgn is the 3D MicroStation design file (.dgn) of the Survey. This file resides in the Survey\MSTA folder.

3DMappingMMDDYY.dgn is the 3D MicroStation design file of the Aerial Mapping (only on Photogrammetric Mapping projects). This file resides in the Survey\MSTA folder.

origtext.dgn is the 3D MicroStation design file of the text associated with ground survey data and Aerial Mapping. This file resides in the Survey\MSTA folder.

Triangles.dgn is the 3D triangulation file for the project. This would also include Aerial Mapping Triangles. This file resides in the Survey\MSTA folder.

ⓘ ***When a design consultant requests survey information for a project, the 3DtopoMMDDYY with the most recent date is the one file containing all the latest 3D topographical data. It will not be necessary to send any of the Origtopoadd#.dgn files.***

Step Nine: Communication to Consultant Coordinator (if necessary)

Send usual correspondence to the Consultant Coordinators in the Programs.

MICROSTATION CLEANUP PROCEDURES

GENERAL INFORMATION

Standard Naming

The department has a standard naming convention for drawing files. The main reason for this is that many of our standard *plan view* type drawings for the department have the existing topography information referenced into them by default. This default reference only works when the files are named correctly and when they exist in the correct location.

Please follow procedures outlined below to adhere to these standards. The standard file names for existing Survey information residing in the **Topo** folder are Topo, Text, Contours, Points and Wetlands. These are the only five files that should permanently live in the **Topo** folder. Click this link for a complete list of MDOT Standard File Names or visit the website at www.maine.gov/mdot/cadd-support/microstation/std_filename.php.

Preserving Original Files

The Survey\Msta Folder is where the "Original" Survey files are stored. The folder will act as the topographical history for any given project. A user can open the folder and tell what was done for original survey, and all subsequent topoadds. The folder is Read-Only to everyone except for the Survey Editors, therefore, MicroStation Survey clean up will be done in the **Topo** folder. If network speed is an issue because of proximity to the server, then copy the necessary files locally.

- ✓ *Regional Office users should refer to page12-1: Regional Workflow documentation for working with files locally. Please consult CADD Support for assistance.*

The End Result

The end result is to make the Topo and Text drawings, which exist in the **Topo** folder, a combination of all Survey topography and text for the project (including Aerial Mapping data). This would leave no question as to which drawings need to be referenced to display all of the existing, cleaned up topography for the project.

INITIAL TOPOGRAPHY CLEANUP

Quick Punch List

- Copy files from Survey/MSTA to Topo folder
- Rename files
- Cleanup Files
- Flatten Files
- Add note to Cleanlog.txt file

♫ This punch list is to give an overview of what is to be done with original survey files. If the topography is needed prior to the cleanup, copy the files to the topo folder and rename them.

Determine Direction of Proposed Alignment

This step is very important. If you haven't already, take necessary steps to determine who the Project Manager is for the project. Ask which direction that they anticipate the alignment to be laid out. If this is unknown, **do not** cleanup this drawing until it's been established.

Step One: Open Windows Explorer

Open Windows Explorer **(Start>Programs>Accessories>Windows Explorer)** and browse to your project on the y: drive.

♫ **Regional Offices**: Copy the project folder to your local C:\PIN or D:\PIN folder and continue with the steps in this document, substituting your C: or D: drive where the document says Y: drive.

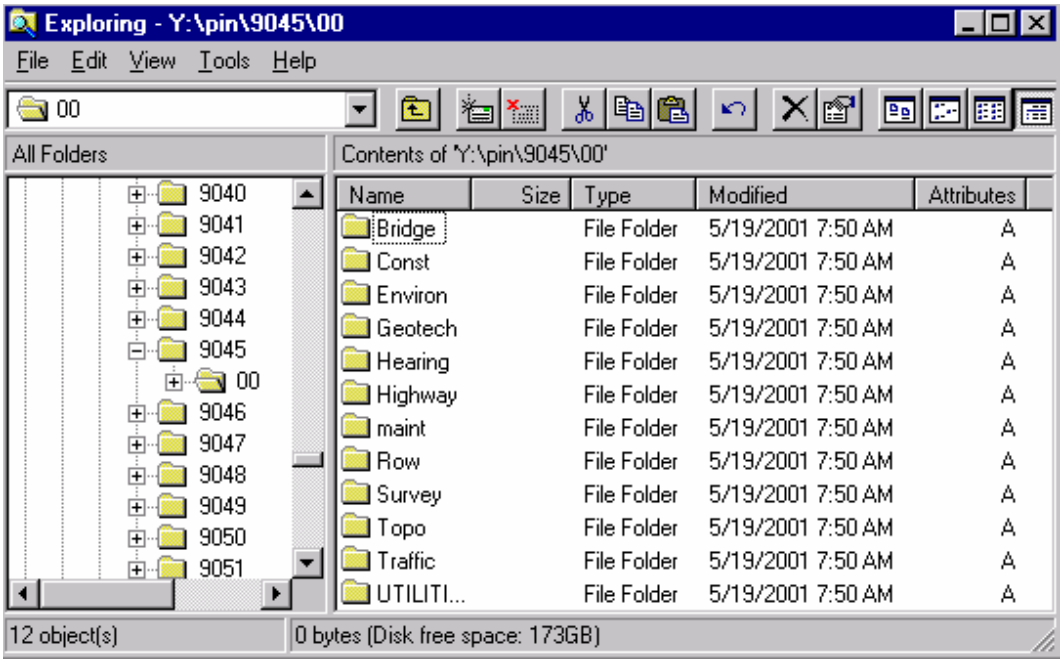


Figure 3-1: Browse with Windows Explorer

Step Two: Open the Topo Folder

In the example above (Figure 3-1), double click the Topo folder to display its contents. This folder should be empty. If it is, proceed to the next step.

ⓘ ***If this folder already contains files, someone may have started Survey cleanup on this project. Do not overwrite these files with the next step. Open the Cleanlog.txt file to see if there are any "cleanup" notes. Skip to Step Four: Open MicroStation.***

Step Three: Copy Files from Survey\Msta to Topo Folder

Part One: Browse to Survey\Msta

With Windows Explorer still open, browse to the Survey\Msta folder, displaying its contents in the rightmost window.

Part Two: Select Files

Select the following files (Hold **Ctrl** to select more than one at a time): **3DtopoMMDDYY.dgn, 3DmappingMMDDYY.dgn (if one exists), Origtext.dgn**, **Contours.dgn** and **Points.dgn**.

ⓘ ***If there are more than one 3DtopoMMDDYY.dgn files, this indicates that there has been topoadd's done for this project. Select the most recent file based on its date. If no cleanup has been done, cleanup up the latest dated file and you will be taking care of every topoadd, including the original topo. All topography is displayed in the latest 3DtopoMMDDYY.dgn file. Always check the Cleanlog.txt file to see what has been cleaned up.***

Part Three: Copy

From the Main Menu, select **Edit>Copy** (Figure 3-2)**.**

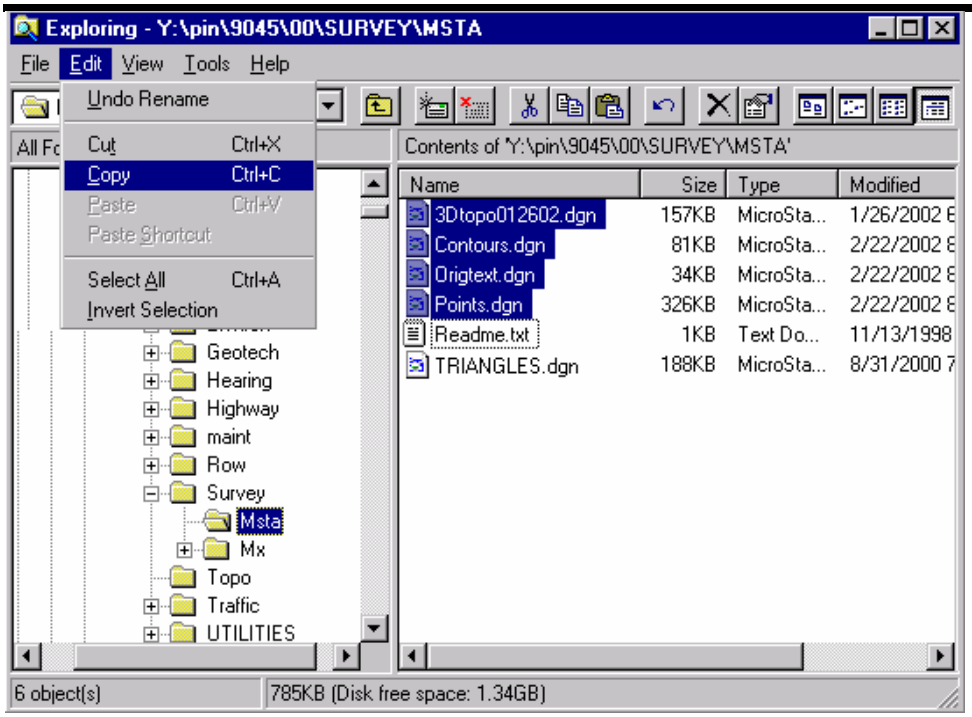


Figure 3-2: Select and Copy files from Survey\MSTA folder

Part Four: Paste

Click on the **Topo** folder. From the Main Menu select **Edit>Paste** (Figure 3-3)**.**

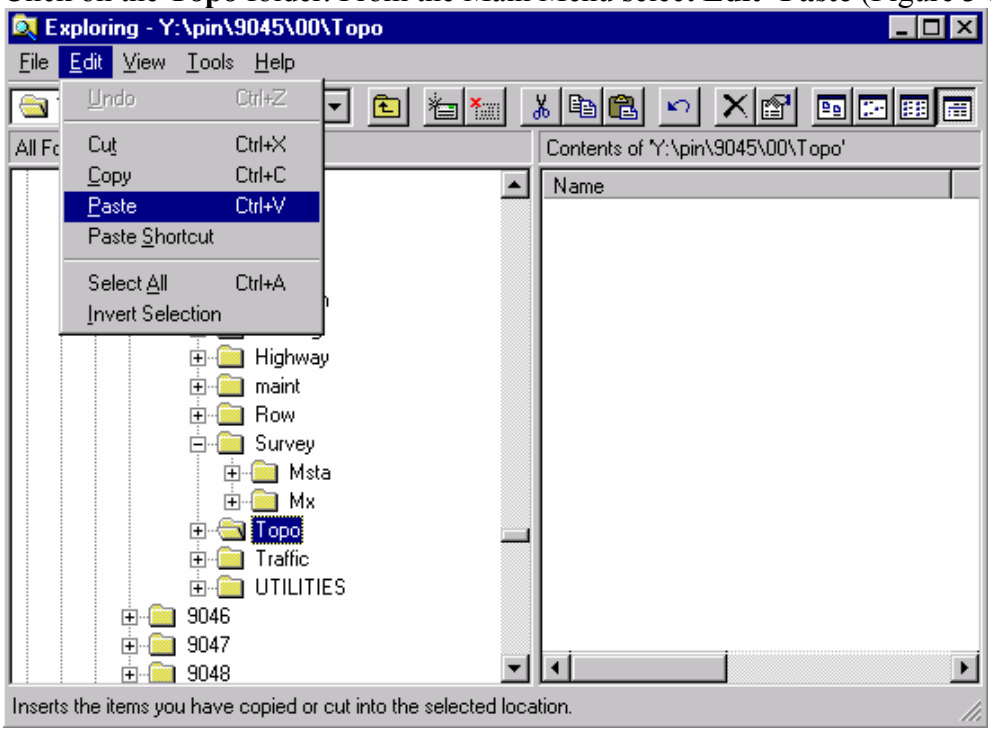


Figure 3-3: Paste files from Survey\MSTA folder to Topo folder

Part Five: Rename Topo, Text and Mapping

Select **3DtopoMMDDYY.dgn.** From the Main Manu, select **File>Rename.** Begin typing the new name, which is **Topo.dgn.** Hit Enter to accept this name.

Select **Origtext.dgn.** From the Main Menu select **Files>Rename.** Begin typing the new name, which is **Text.dgn.** Hit Enter to accept this name.

Select **3DmappingMMDDYY.dgn.** From the Main Menu select **Files>Rename.** Begin typing the new name, which is **Mapping.dgn.** Hit Enter to accept this name.

Part Six: Add Notes to Cleanlog.txt File!

As a courtesy to others, always add a note to the **Cleanlog.txt** file located in the **Topo** directory as progress is made during the cleanup process. Here are a few examples of informative cleanup notes.

03/04/02 John Doe - Started **Topo.dgn** cleanup.

03/04/02 John Doe - Started **Mapping.dgn** cleanup.

03/07/02 John Doe - Finished **Topo.dgn** cleanup.

03/07/02 John Doe - Started/Finished **Text.dgn** cleanup.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt file so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

Step Four: Open MicroStation

Open MicroStation by clicking the Icon on your desktop. When the *MicroStation Manager* window appears, pick your project from the *Project* pull down. Browse to the **Topo** directory by double clicking your project number's decimal folder (i.e. pin\9045**"00"** folder), then double clicking the "Topo" folder.

- If the project pull down does not take you to your project, contact your CADD Support personnel.

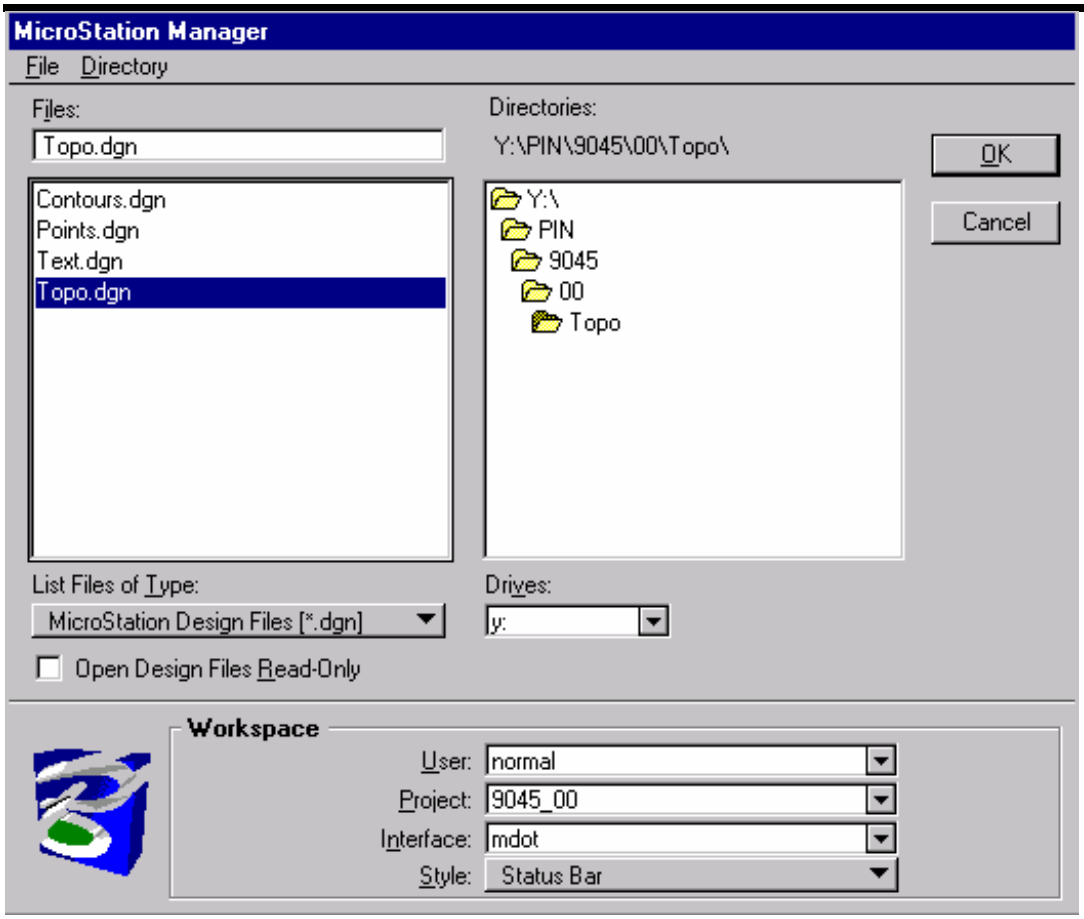


Figure 3-4: Select the topo.dgn and click OK

You should see four or five drawings on the left. Select **topo.dgn** (Figure 3-4) and click **OK.** Once the file is open, click *Fit View* from *Window 1's* view control toolbar. Close *Window 2, Window 3and Window 4* if necessary and maximize *Window 1.*

ⓘ ***If the Topo directory is empty, go back to Step Three and copy files.***

Step Five: Attach Reference Files

The **topo** and **text** drawings do not have any reference files attached by default. Even though you can only edit one file at a time, it is helpful to have both drawing displayed. Select **File>Reference(DOT)>Attach** from the Main Menu. Select the **Text.dgn,** browsing to the **Topo** folder if necessary. Click OK. It is not necessary to enter a *Logical or Description.* Attach by *Coincident World* method. Repeat this process for the **Points.dgn** and **Contours.dgn** drawings. To shut off the display of these two reference files, open the *Reference File* dialog (**File>Reference** from the Main Menu), click the "checkmark" in the *Display* column of the reference files you wish to shut off.

Step Six: Turn Off Line Weights (Optional)

Some users prefer to have line weights shut off. To do this, select **Settings>View Attributes** (Ctrl+B) from the Main Menu. Uncheck Line Weights. Hit **Apply.** Close View Attributes Window.

Step Seven: Adjust Level Display (Optional)

You may want to shut off levels 8 (H_V CONTROLS) and 12 (GROUND) in the **topo.dgn.** These are the Traverse Points and the Ground Elevation strings. No Cleanup is required on these elements, and shutting them off reduces the clutter on the drawings. This is done by selecting **Settings>Level>Display (Ctrl+E)** and deselecting the levels you don't want to be displayed (Figure 3-5).

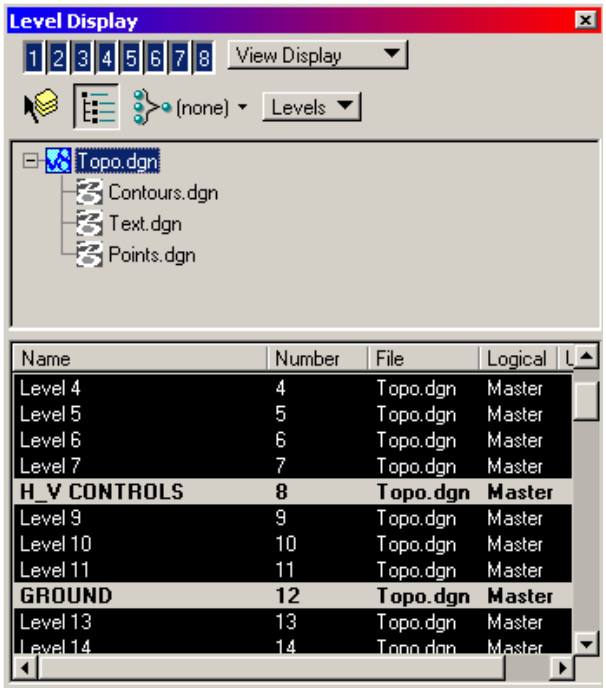


Figure 3-5: Deselected Levels in the Level Display

Refresh the view if necessary. Close this dialog box.

Step Eight: Load Clean-up Tools (Optional)

From the Main Menu, select **Tools>Tool Boxes…**

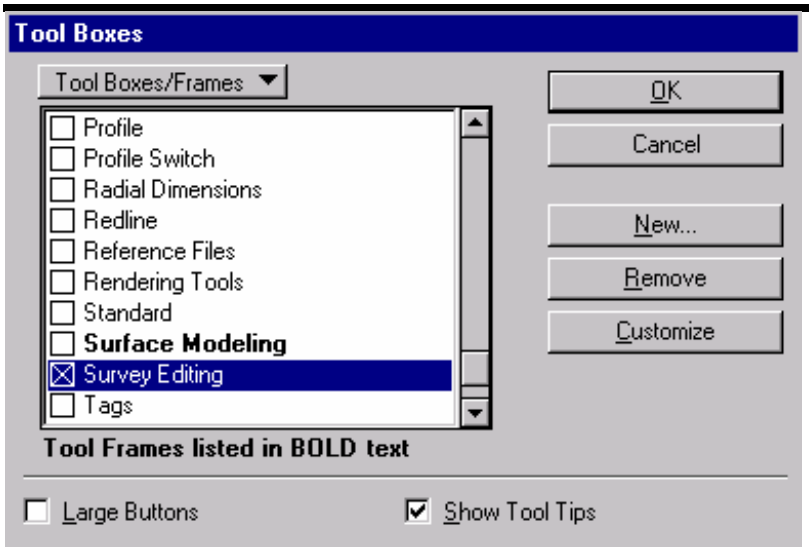


Figure 3-6: Tool Boxes dialog

Scroll down the list and click to place an "X" in the **Survey Editing** box (Figure 3-6). Click **OK**. A new set of tools should appear.

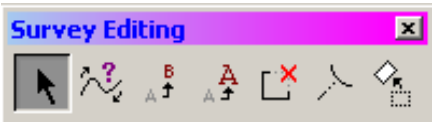


Figure 3-7: Survey Editing Tool Box

These *Survey Editing* tools (Figure 3-7) are dockable and will auto-load next time you enter MicroStation.

ⓘ ***If you do not have these tools as an option, contact your CADD Support.***

 **Element Selection Tool:** Can be used to select individual elements or multiple elements by holding the **Ctrl** key. (Also located in the *Main* Tool Box.)

 **Change Element Direction Tool:** Use this to reverse a custom linestyle direction. (i.e. Trees and Bushes). (Also located in the *Modify* Tool Box.)

 **Edit Text:** Says it all. (Also located in the *Text* tool box.)

 **Change Text Attributes:** Used to change the text to the MDOT standard height and width. (Also located in the *Text* tool box.)

 **Partial Delete:** Used to delete part of an element. (Also located in the *Modify* Tool Box.)

 **Extend Element to Intersection:** Used to extend an element. (Also located in the *Modify* Tool Box.)

Rotate: Used to rotate individual elements (i. e. text and cells) around a user-defined point or origin point. (Also located in the *Manipulate* Tool box)

ⓘ ***For a detailed description of any tool, select Help>Contents and then Help>Tracking. Click on each tool, one at a time, and look to the Help window for a description.***

Step Nine: Adjust Ditch Arrows (May be Necessary)

General Information

Adjusting the direction of existing ditches (as of December 2002) is now a responsibility of the MX editor. They are supposed to make the adjustments in MX and the direction should be correct when the drawings are translated into MicroStation. Older projects may still require editing in MicroStation.

Part One: Adjust Display Of Topo.dgn to Isolate Ditch and Culverts (Optional)

All ditch lines must be checked to see that the arrows point in the direction of the flow of water. To isolate the ditch lines, open the *Level Display* by selecting **Settings>Level>Display (Ctrl+E).** With topo levels displayed, ***Right Click*** anywhere in the Levels area and select **All Except Element** (Figure 3-8).

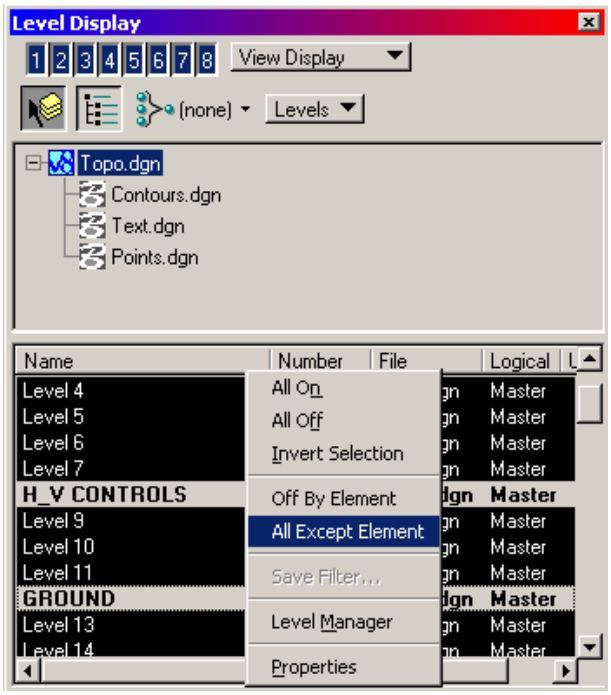


Figure 3-8: Right Click and Select All Except Element

Click on any ditch line or culvert pipe. Click to *select* the element, then, click to *accept it.* Only the "Open Drainage" items will be displayed. Close the dialog.

Part Two – Option A: Using Elevation to Determine Direction

An accurate way to determine flow direction is to check the elevation at both ends of the ditch line while it is still 3 dimensional.

Shut off *Depth Lock* by selecting **Settings>Locks>Depth** from the Main Menu. Use a *Keypoint* snap (default snap) with your middle mouse button and click on one end of ditch line. Look to the Status bar located in MicroStation's status bar (Figure 3-9).

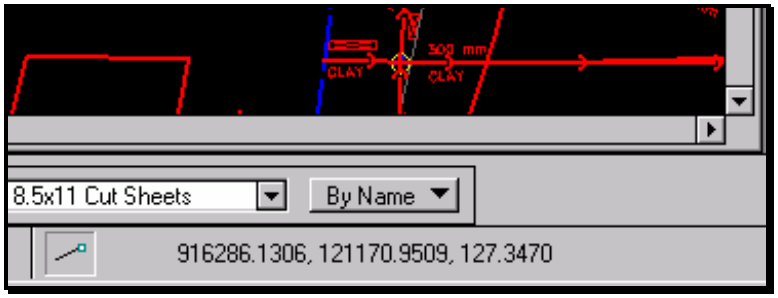


Figure 3-9: X, Y and Z coordinate displayed in MicroStation Status bar

The elevation (Z) is the rightmost set of numbers (or look in the Z field of *AccuDraw)*. Click on another vertices of the line to determine which direction the ditch is flowing. Use the **Reverse Directions** tool to change directions if necessary. An example of using the tool is in the next step.

Part Two – Option B: Using Contours to Determine Direction

Turn on the display of your **Contours.dgn (File>Reference** from the Main Menu**)** to quickly determine flow direction. Place a "check mark" in the display area for contours.

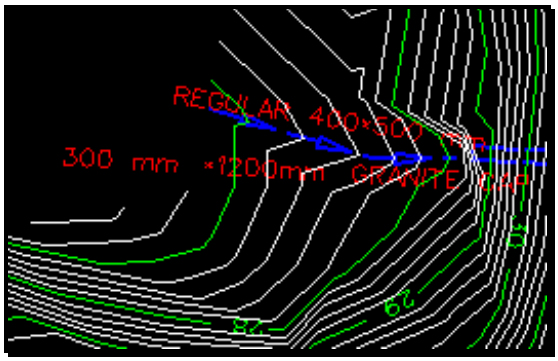


Figure 3-10: Example of ditch arrow in wrong direction

In the Example above (Figure 3-10), the ditch arrow is pointing from the 27.00 +/- to 29.00 +/-, which is uphill and therefore wrong.

Part Three: Click the Reverse Direction Tool 

Click the tool and follow the prompts in the bottom left status bar.

Part Four: Select the Line (Identify the Element)

Click on the line with a left mouse button. An arrowhead will appear (Figure 3-11) displaying the current direction of the line.

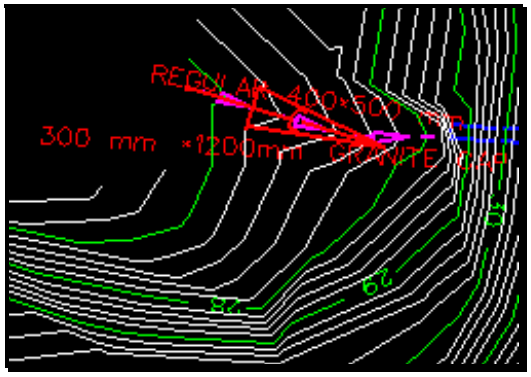


Figure 3-11: Reverse Direction tool in action

Part Five: Define Start of the Line

The prompt is telling you to click anywhere near the opposite end of the line. This will make the other end the starting point (Figure 3-12). As long as the click on the screen is beyond the midpoint of the line, it will reverse directions.

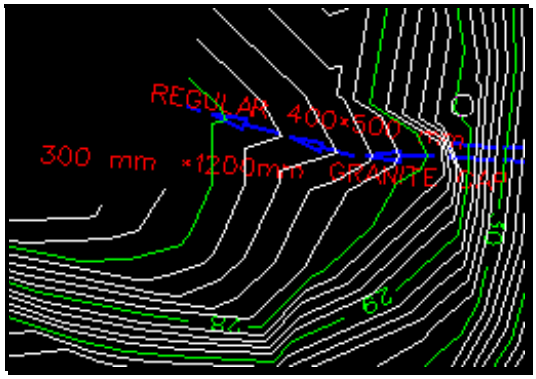


Figure 3-12: Reverse Direction results

Part Seven: Adjust Level Display (If You Adjusted it to Isolate Drainage)

Turn on the levels that you shut off. From the Main Menu, select **Settings>Level>Display (Ctrl+E).** With the *topo* levels displayed, ***Right Click*** anywhere in the levels area and select **All On.** Click on the 8 (H_V CONTROLS) and 12 (GROUND) to shut off these two levels. Close Window.

Step Nine: Flatten Your Drawing

From the Main Menu, select **Macros>Flatten.** Click **OK** to accept "0.000" as the desired elevation to flatten to. Click anywhere in the view window to accept the command. Fit your view.

Step Ten: Determine Direction of Proposed Alignment

This step is very important. Take necessary steps to determine who the Project Manager is

for the project. Ask which direction that they anticipate the alignment to be laid out. If this is unknown, **do not** cleanup this drawing until it's been established.

Step Eleven: Adjust View and Save Settings (Optional)

Rotate the View Window

If your project is not running from left (West) to right (East), you may want to rotate your view window so that the majority of the project is horizontal across your screen. Select **Rotate View** from Window 1's *View Controls* (Figure 3-13).

Figure 3-13: Rotete View Tool

When the *Rotate View* dialog appears, set method to 3 points. **First point (0/0),** click on screen where you want the lower left corner of the new window to be. **Second point (+X direction),** click where you'd like the bottom right corner of the view window to be. **Third point (+Y direction)**, click to define the top left corner of the view window (Figure 3-14).

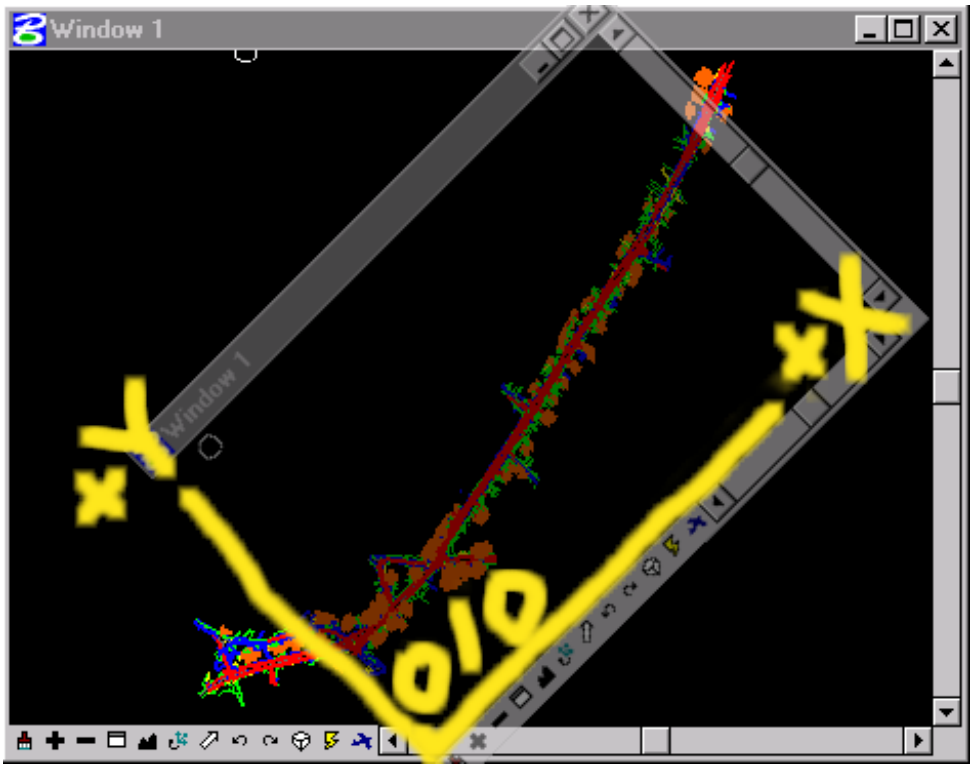


Figure 3-14: Rotating your View

- Rotate View as often as necessary to get the majority of elements horizontal in your view. It is best **not** to snap to elements in your file while performing this command, unless you lock your "Z" prior to doing so **(Macros>Set/Lock Z).** A slightly skewed view may result if the 3 elements snapped to are at different elevations.

Graphic Group Unlock

Disable Graphic Groups by selecting **Settings>Locks>Graphic Groups** from the Main Menu or click the padlock on the status bar and click Graphic Groups to remove the checkmark.

Save Settings

To save these settings as your default view for the file, select **File>Save Settings.**

- If Save Settings is grayed out, this means that your current preferences are to save settings on exit. It will accomplish what this step is intended to do.

Step Twelve: Reverse Element Direction

There are many other directional elements (like ditches) that may require reversing in the **Topo.dgn.** Use the **Reverse Directions Tool** to reverse tree lines, bush lines, house lines, curbing lines, guardrail strings, wetland lines, river and water lines and other underground utility lines, to correctly display each element.

Tree lines, Bush lines and Gardens should have the "rounded" side towards road. The rounded cell in the line is representing the canopy or outer edge of the wooded area.

The heavier line of a **house and river** line style represents the outer edge of that object. House lines may have two or more segments to reverse.

Underground utility lines and wetland lines have text imbedded in them that may require reversing. Water lines, for example, may need to be reversed to show the 'W' symbol aligned correctly with the centerline or plan sheet.

Curbing lines may need to be reversed so that the symbol will fall closest to the edge of pavement or dashed edge of concrete, gravel or planting.

Guardrail lines may need to be reversed so that the posts are away from the roadway.

Click on Change Element Direction Tool and reverse the string(s) (may have more than one segments to reverse).

Part One: Click the Reverse Direction Tool 

Click the tool and follow the prompts in the bottom left status bar.

Part Two: Select the Line (Identify the Element)

Click on the line with a left mouse button. An arrowhead will appear displaying the current direction of the line.

Part Three: Define Start of the Line

The prompt is telling you to click anywhere near the opposite end of the line. This will make the other end the starting point. As long as the click on the screen is beyond the midpoint of the line, it will reverse directions.

- You may have trouble reversing closed elements (shapes, blocks, etc.) and elements that go in both directions. Try deleting a small portion of the element using the *Delete Partial* tool.  Click on the Partial Delete Tool. Click anywhere on the string, then without moving the cursor away from the center of AccuDraw's compass, click where you originally clicked forming a partial deletion of the line that is unnoticeable.

Step Thirteen: Rotating Topography Cells

General Information : What to Rotate

Iron Pins - Rotate so that the text in the cell runs parallel with the roadway. Iron pin rotation will vary from pin to pin, so it's better to rotate these individually.

Telephone and light poles - Poles that have a line through them should be rotated so that the line is perpendicular to the centerline of the roadway. A light pole would have its mast over parking lots or the roadway.

Single Post Street signs - The flat side of the sign should be facing the oncoming lane of traffic, unless it is a 'No Parking' sign or an entrance to a business. These will be facing the street (as seen in real life).

Double Post Signs - Double posted signs are created with a linestyle. This linestyle is directional and may need to be reversed to face traffic or the roadway.

Mailboxes - The short, flat side of mail box cell should be parallel to centerline, with the two pointed ends away from the road.

Catch basins & Drop Inlets - The "grate lines" should be perpendicular to curb / edge of pavement (so a bicycle wheel won't drop into them).

Hydrants - Rotate so that the spout is facing the roadway (as seen in real life).

Sill Elevations on buildings - The letters "Sill El" should generally be perpendicular to the building wall. If on the front face of building, rotate them so they are perpendicular and inside the building.

Global vs. Individual Rotation Introduction

Most cells will come in from the cell library at the same orientation (with the exception of Iron Pins and sill shots) and will need to be rotated around their individual origins to align with the centerline at that specific location on the project.

One pass **Globally,** using selection sets through the entire project will align the majority of cells correctly. The cells that it doesn't correct will most likely be an even 90-degree increment away from being correct.

ⓘ ***This method works best on the straight portions of your project. Areas on a curve can be dealt with by using smaller selection sets or simply by using individual rotation methods.***

Utilize the **Individual rotate** command for Iron Pins, signs and other item that need final tweaking. Intersections of Side Roads require a bit more attention in this respect.

Global Rotation: Select Multiple Cells to Rotate

Identify a portion of your project that is fairly straight. If your project is one big curve use small selection sets so that global rotation will be effective.

To set your editing filter to only cells in your file, go to **Edit>Select By Attributes.**

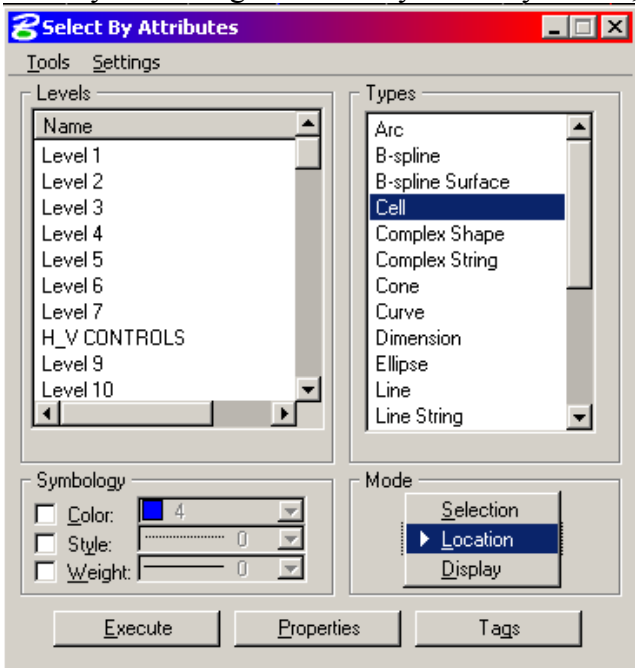


Figure 3-15: Select By Attributes set to locate cells only

In the *Types* portion of the dialog, select **Cell.** In the *Modes* section of the dialog, change *Selection* to ***Location*** (Figure 3-15)**.** Hit *Execute.* Now you are only able to edit (rotate) cells in your file for the time being. If the dialog gets in the way, you can close it and click OK to keep the edit filtering "on" (Figure 3-16). When done editing cells, open **Select By Attributes** again and hit cancel to stop filtering.

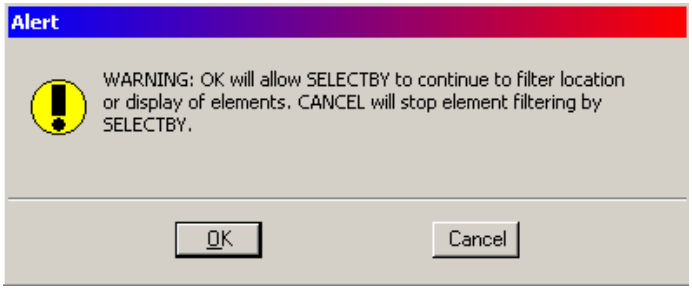


Figure 3-16: Select By Attributes Alert Message

Using the Power Selector - The power selector works well for selecting single or multiple cells because of the various selection methods. You can also add and subtract from your

selection set easily. Choose *Shape* method and choose the "**+**" in the mode field (Figure 3-17).

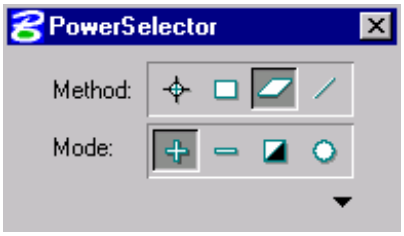


Figure 3-17: Power Selector set to shape

Left click to form a shape around the cells you want to rotate, returning back to the beginning point to close the shape. You should see them highlight.

- To create new selection sets, hit your "spacebar" to clear the current selection set (while focus is in *Power Selector* dialog) and place a shape around the new set of cells.

✓ *Refer to page 2-28 for more information on the Power Selector tool.*

Click the **Rotate** tool from the Survey Editors tool box or the Main tool frame. In the Tools Setting box, click the down arrow (Figure 3-18) to *Show Extended Information.* Place a checkmark in the *About Element Center* box (Figure 3-19) of the dialog box.

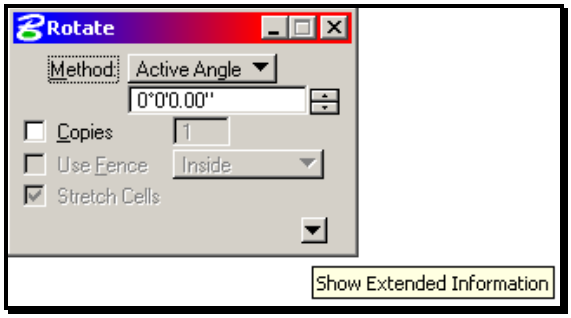


Figure 3-18: Rotate Element's Show Extended Information button

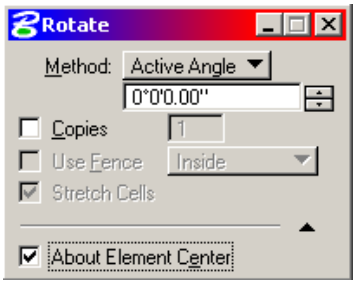


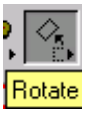
Figure 3-19: Rotate Element's About Element Center box

Active Angle method: Take a rough guess of what the angle would be between the cell and the roadway. In the **angle** field, type in the angle. If you don't have any idea what the angle might be, try using a 5-degree rotation and click multiple times on the screen to continue rotating this amount. (Type in a "-" for a clockwise rotation.)

2 Points method: Click on the screen and you are dynamically rotating the cells around their origins. Move your cursor around the *AccuDraw's* compass until the majority is rotated correctly. Click to *Accept* this rotation. Right Click to stop rotating.

Individual Rotation

To perform individual rotations, rotate the cells around the point established by the Survey Crew, which is also the center/origin point of most cells.



Click the **Rotate** tool from the Survey Editors tool box or Main tool box. In the Tools Setting box, click the down arrow to *Show Extended Information.* Place a checkmark in the *About Element Center* box of the dialog box. Click near the cell (the actual pivot is set to the cells origin based on the tool setting). The cell will rotate dynamically as you move the mouse around *AccuDraw's* compass. Left click again to define the amount of rotation. Right Click to stop rotating the cell.

Step Fourteen: Rotating and Stretching Cells

General Information: Guy Wires and Brace Poles

Guy wires and brace poles should be rotated to face the nearest pole. Stretch the cell to attach it to closest spot on the pole.

Part One: Rotate

Use the *Rotate* tool with the tool setting *About Element Origin* to rotate the cell toward the nearest pole.

Part Two: Place Fence

Place a fence around the tip of the long end of the symbol. Select **Group>Fence>Place Block** from the Main Menu or *Place Fence*  from the Main Toolbar. Encompass only the tip of the guy wire.

Part Three: Fence Stretch (Cell)

Select **Group>Stretch Fence** from the Main Menu or *Manipulate Fence Contents*  from the Main Toolbar, setting Operation to *Stretch* and Fence Mode to *Inside.* Make sure that *Stretch Cells* is turned on. With a *Keypoint* snap, tentative and accept to the long end of the guy wire to define what point to move from. Also with a *Keypoint* snap, tentative and accept to the side of the pole nearest the guy wire.

ⓘ ***If any other element vertices are in the fence, they will be stretched also.***

Step Fifteen: Moving Vertices

You may need to connect any storm sewer pipes, sanitary pipes, water lines and other underground utilities. Do this only if absolutely certain that the like-sized pipes that point

towards each other actually connect underground. A field inspection or correspondence with town or city utility companies by the Project Manager may be necessary in an urban situation.

Use the *Modify Element* tool to move one end of the line to the center of the desired utility manhole, catch basin or water gate.

Delete duplicate lines.

Step Sixteen: Adjust and Save Changes (Courtesy To Others)

Rotate Window 1 back to a top view. Click on *Rotate View* and set the *Method* to **Top**. Click in the view to accept the new rotation. Select **File>Save Settings.**

- If Save Settings is grayed out, this means that your current preferences are to save settings on exit. It will accomplish what this step is intended to do.

Step Seventeen: Add Note to Cleanlog.txt File!

Make a comment to the Cleanlog.txt to let people know that the topo has been cleaned up.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

Step Eighteen: Open and Flatten Contours and Points

Open the Contour.dgn file located in the \topo folder, select **Macros>Flatten** from the *Main Menu.* Follow promts. Close MicroStation. Repeat for the Points.dgn file.

Step Ninteen: Repeat for Mapping.dgn (Projects that Utilizes Aerial Mapping)

Cleanup Mapping.dgn

If the Survey/MSTA folder has a **3DmappingMMDDYY.dgn,** you must clean up this file as well. Follow the same steps as outlined in the "Initial Topography Cleanup" section. Substitute **mapping.dgn** where it asks for the **topo.dgn.**

- Some older projects may have mapping in a separate folder. Files may not follow the naming described in this manual. Contact CADD Support for assistance.

Merge Mapping.dgn into Topo.dgn

Once the **Mapping.dgn** cleanup has been completed, open the **topo.dgn** file from the Topo folder. Select **File>Reference (DOT)>Attach** from the *Main Menu* and select the **Mapping.dgn**, browsing to the **Topo** folder if necessary. Click OK. It is not necessary to enter a *Logical or Description.* Attach by *Coincident World* method.

From the *Reference File* dialog, select the **Mapping.dgn** file. Then select **Tools>Merge Into Master.** Following the prompts, click in your view window. This dialog will come up (Figure 3-20) warning you that you are about to merge the Reference file into your current file.

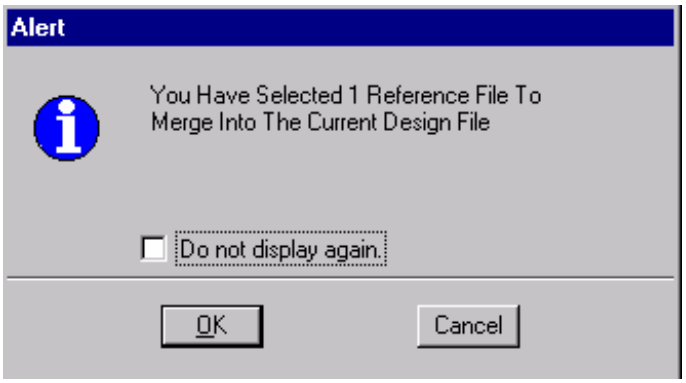


Figure 3-20: Merging Reference File Alert

If everything looks good, click OK to proceed.

Hit *Refresh.*

INITIAL TEXT CLEANUP

Determine Direction of Proposed Alignment

This step is very important. If you haven't already, take necessary steps to determine who the Project Manager is for the project. Ask which direction that they anticipate the alignment to be laid out. If this is unknown, **do not** cleanup this drawing until it's been established.

Step One: Open the Text.dgn (From the Topo Folder)

Open MicroStation by clicking the Icon on your desktop. When the *MicroStation Manager* window appears, pick your project from the *Project* pull down. Browse to the **Topo** directory by double clicking your project number's decimal folder (i.e. pin\9045**"00"** folder), then double clicking the "Topo" folder.

- If the project pull down does not take you to your project, contact your CADD Support personnel.

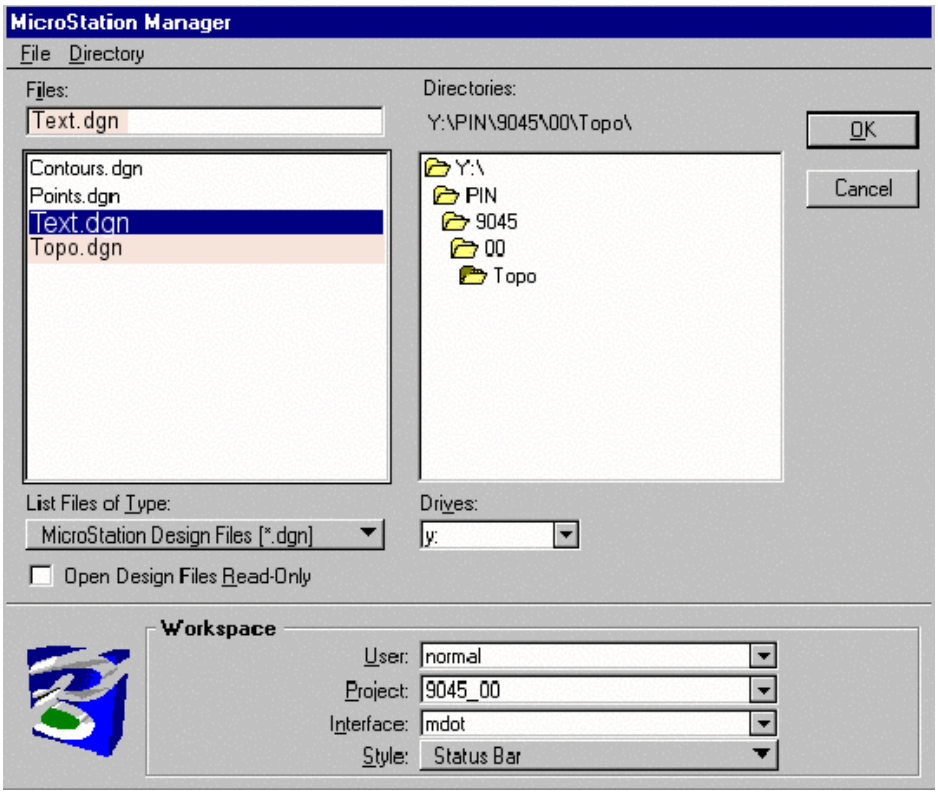


Figure 3-21: Select Text in the MicroStation Manager dialog

You should see four or five drawings on the left. Select **text.dgn** and click **OK** (Figure 3-21). Once the file is open, click *Fit View* from *Window1's* view control toolbar. Close *Window2, Window3and Window4* if necessary and maximize *Window1*.

ⓘ ***If the Topo directory is empty, go back to Step Three and copy files.***

Step Two: Reference Topo.dgn and Mapping.dgn (If exists)

Select **File > Reference(DOT)>Attach**. Browse to the **Topo** folder if necessary and select **topo.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method. Repeat for **Mapping.dgn.**

Step Three: Flatten the Drawing

From the *Main Menu*, select **Macros>Flatten**. Follow prompts.

Step Four: Adjusting Text Height, Width and Line Spacing

Part One: Select Text

From the Main Menu select **Edit>Select All.** All of the text should highlight.

Part Two: Change Text Attributes

From the Main Menu select **Qualities>Change>Text>Size.**

Part Three: Set Text Height

25' = 1 inch (300 scale) US Customary Projects: Change the Line Height to 2.46.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Height to 4.92.

250 scale Metric Projects: Change the Line Height to 0.625.

500 scale Metric Projects: Change the Line Height to 1.25.

Part Four: Set Text Width

25' = 1 inch (300 scale) US Customary Projects: Change the Line Width to 1.96.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Width to 3.92.

250 scale Metric Projects: Change the Line Width to 0.500.

500 scale Metric Projects: Change the Line Width to 1.00.

Part Five: Set Line Spacing

25' = 1 inch (300 scale) US Customary Projects: Change the Line Spacing to 1.64.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Spacing to 3.28.

250 scale Metric Projects: Change the Line Spacing to 0.417.

500 scale Metric Projects: Change the Line Spacing to 0.834.

Part Six: Click to Accept the Command

Click in *Window 1* to accept the command and the current selection set. All of the text will change size.

Part Seven: Select None

From the Main Menu, select **Edit>Select None.**

Step Five: Rotating Text

General Information

Most text should be rotated to read from west to east (parallel to centerline), and/or from south to north (perpendicular to centerline). In tight situations, a 45-degree rotation is acceptable.

All rotated text, if perpendicular to the centerline, should be legible from the right side of the plan sheet. This enables a person to read the text from a stapled set of plans with the most ease.

Text on buildings should be rotated either parallel or perpendicular with the building face.

Text for drives should run parallel to the drive unless it identifies a wide parking area/lot.

Global vs. Individual Rotation Introduction

All text in the text.dgn comes in at the same angle.

One pass **Globally,** using selection sets through the entire project will align the majority of text elements correctly. The text that it doesn't correct will most likely be an even 90-degree increment away from being correct.

ⓘ ***This method works best on the straight portions of your project. Areas on a curve can be dealt with by using smaller selection sets or simply by using individual rotation methods.***

Utilize the **Individual rotate** command for text blocks that need final tweaking. Intersections of Side Roads require a bit more attention in this respect.

Global Rotation: Select Text Blocks to Rotate

Identify a portion of your project that is fairly straight. If your project is one big curve use small selection sets so that global rotation will be effective.

Using the Power Selector - The power selector works well for selecting single or multiple text blocks because of the various selection methods. You can also add and subtract from your selection set easily. Choose *Shape* method and choose the "**+**" in the mode field (Figure 3-22).

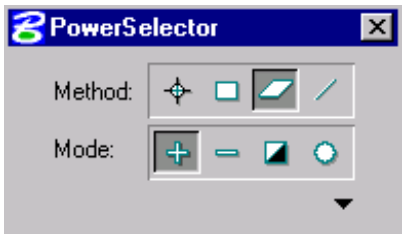


Figure 3-22: Power Selector set to shape

Left click to form a shape around the text blocks you want to rotate, returning back to the beginning point to close the shape. You should see them highlight.

Click the **Rotate** tool from the Survey Editors tool box or the Main tool frame. In the Tools Setting box, click the down arrow to *Show Extended Information (*Figure 3-23*).* Place a checkmark in the *About Element Center* box of the dialog box (Figure 3-24).

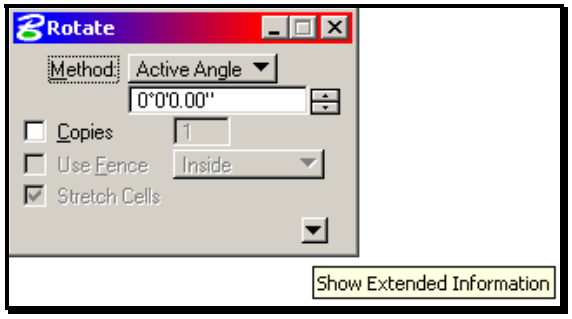


Figure 3-23: Rotate Element's Show Extended Information button

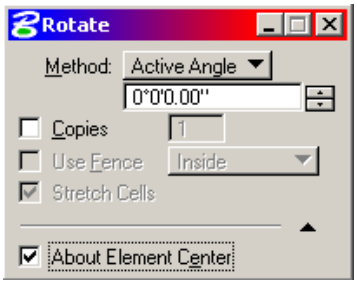


Figure 3-24: Rotate Element's About Element Center box

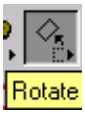
Active Angle method: Take a rough guess of what the angle would be between the text block and the roadway. In the **angle** field, type in the angle. If you don't have any idea what the angle might be, try using a 5-degree rotation and click multiple times on the screen to continue rotating this amount. (Type in a "-" for a clockwise rotation.)

2 Points method: Click on the screen and you are dynamically rotating the text blocks around their origins. Move your cursor around the *AccuDraw's* compass until the majority is rotated correctly. Click to *Accept* this rotation. Right Click to stop rotating.

- To create new selection sets, hit your "spacebar" to clear the current selection set (while focus is in *Power Selector* dialog) and place a shape around the new set of text blocks.
- Refer to page 2-28 for more information on the *Power Selector* tool.

Individual Rotation

To perform individual rotations, rotate the text block around the point established by the Survey Crew, which is also the center/origin point of the cell it identifies.



Click the **Rotate** tool from the Survey Editors tool box or Main tool frame. In the Tools Setting dialog, click the down arrow to *Show Extended Information.*

Place a checkmark in the *About Element Center* box of the dialog box. Click near the text block (the actual pivot is set to the text block's origin based on the tool setting). The text block will rotate dynamically as you move the mouse around *AccuDraw's* compass. Left click again to define the amount of rotation. Right Click to stop rotating the text block.

Step Six: Moving Text

After text is rotated, it may also require moving. Text should be kept out of and away from roadway as much as possible. Use common sense when moving items nearest the cell that they describe so the plan "looks good". Use the *Move Element* tool to move single text blocks.

- Snapping to text (middle mouse) will show you what the text is describing. This works well in areas where text is on top of text making it difficult to distinguish. Identify what the text is describing and move it to a better location until all elements are clearly identified.

Step Seven: Editing Text (Optional)

Text for similar elements should be consistent. Examples of inconsistent labels are GRAV.DR., GR.DRIVE, GRAVEL DR.. Adjust these to read GRAVEL DRIVE. (If in a tight area, abbreviations may be unavoidable.) Use the *Edit Text* tool to do this. Click the tool and then identify the text. Click once more to *Accept* and the text will appear in the **Text Editor** window. Make your changes and hit **Apply**. Right click to stop editing *that* text block.

Abbreviations or making the text appear on two lines may be necessary in order to squeeze long descriptions in highly congested areas. Like items close to each other, may be labeled once. To do this, edit the text using the *Edit Text* tool. Click on the text, once more to *Accept* and it should appear in the **Text Editor** window. Make your changes and hit **Apply** (i.e. 5 – 400 to 500 mm CEDAR SHRUBS).

Step Eight: Labeling With Arrows (Optional)

It may be necessary to create an arrow line pointing to the cell it represents. Here are a few steps to accomplish this.

Part One: Match Existing Elements

Using the *Smartmatch* tool (Quality>Match>All), click on the text to match the color, level and style attributes of the text.

Part Two: Set Linestyle

Go to the Active Line Style pull down. Select Custom. Select the LARROW for metric 250 scale projects, IARROW for 300 scale U. S. Customary projects.

Part Three: Make Lines

Using the *Place Smartline* tool, click to the left of the text block with the left mouse button. Type RQ (Rotate Quick) and align your *Accudraw* axis along the text block and click your left mouse button. Enter the distance that you want your line to be from the text 3 feet (1.0 m) is usually good and click your left mouse button to *Accept*. Point to the cell that you are annotating (Figure 3-25). Do the same for the other side if necessary.

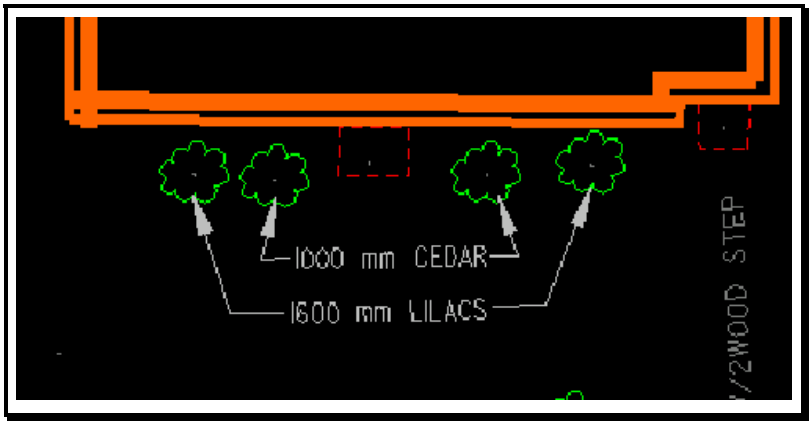


Figure 3-25: Example of annotating with arrows

Step Nine: Find and Replace Text (Metric Projects Only)

Change the units from displaying an upper case 'MM' to a lower case 'mm' as suggested by current Metric standards. Open the **Edit > Find And Replace Text** dialog box. By using certain combinations of strings, you can change all of them globally. Find "0MM". Replace with "0 mm" (gets all numbers ending with a zero). Find "_MM". Replace with "_mm". In this example, the "_" symbol represents a space. This should change them all. Do the same process to change from "M" (meters) to "m".

- Some words will have two 'M's in them. Commercial is one. Using the above combinations will not affect these type words.

Step Ten: Adjust and Save Changes (Courtesy To Others)

Rotate Window 1 back to a top view. Click on *Rotate View* and set the *Method* to **Top**. Click in the view to accept the new rotation. Select **File>Save Settings.**

- If Save Settings is grayed out, this means that your current preferences are to save settings on exit. It will accomplish what this step is intended to do.

Step Eleven: Add Note to Cleanlog.txt File! (Courtesy To Others)

Make a comment to the Cleanlog.txt to let people know that the text has been cleaned up.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other

employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

ADDITIONAL TOPOGRAPHY CLEANUP

Quick Punch List

- Copy topoadd# files from Survey/MSTA to Topo folder
- Rename files (remove the "Orig")
- Cleanup Files
- Flatten Files
- Blend the two Files
- Merge file into topo.dgn
- Add note to Cleanlog.txt file

♫ This punch list is to give an overview of what is to be done with additional topograph files. If the topoadds are needed prior to the cleanup, copy the files to the topo folder temporarily.

♫ Supply your topoadd number where you see a "#" sign.

Step One: Copy/Rename Origtopoadd#, Origtextadd#, Contours and Points

Copy Origtopoadd#, Origtextadd#, Contours and Points from the **Survey\Msta** folder into the **Topo** folder using Windows Explorer. You will be prompted to overwrite Contours and Points. Say **Yes.**

Select Origtextadd#.dgn. From the Explorers Menu, select **File>Rename.** Remove the Orig from the file name. Repeat for Origtopoadd#.dgn (i.e. **topoadd1.dgn** and **textadd1.dgn.)**

✓ *Refer to Step Three: Copy Files from Survey\Msta to Topo Folder in the Initial Topography Cleanup portion of this manual for more detailed instruction if necessary.*

♫ If there are more than one 3DtopoMMDDYY.dgn files, this indicates that there has been topoadd's done for this project. If no cleanup has been done on the whole project, cleanup up the latest dated file and you will be taking care of every topoadd, including the original topo. All "ground survey" topography is displayed in the latest 3DtopoMMDDYY.dgn file. Always check the Cleanlog.txt file to see what has been cleaned up.

♫ The original 3DmappingMMDDYY.dgn file contains all Aerial Mapping data. No additional Aerial mapping is ever done. If there is more than one 3DmappingMMDDYY.dgn, it means that additional ground survey has been taken in the form of a Origtopoadd#.dgn. Survey re-creates a 3DmappingMMDDYY.dgn to indicate where the ground survey fits in. This area(s) is encompassed by a boundary string.

Step Two: Add Note to Cleanlog.txt File!

As a courtesy to others, always add a note to the **Cleanlog.txt** file located in the **Topo** directory as progress is made during the cleanup process. Here are a few examples of informative cleanup notes.

03/04/02 John Doe - Started **Topoadd#.dgn** cleanup.

03/07/02 John Doe - Finished **Topoadd#.dgn** cleanup.

03/07/02 John Doe - Started/Finished **Textadd#.dgn** cleanup.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

Step Three: Open Topoadd#

Click the MicroStation icon on your desktop and pick your *Project* from the pull down. Browse to the **Topo** folder. Select **Topoadd#.dgn** and click OK.

- If the project pull down does not take you to your project, contact your CADD Support personnel.

Step Four: Attach Reference Files

Select **File>Reference(DOT)>Attach** from the Main Menu. Select the **Textadd#.dgn,** browsing to the **Topo** folder if necessary. Click OK. It is not necessary to enter a *Logical* name or description for any attachments to this file. Attach by *Coincident World* method. Repeat this process for the **Topo.dgn** and **Text.dgn** drawings. Shut off the display of **Topo** and **Text** unless you need to see the "big" picture.

Step Five: Refer to Step 6 through Step 18 in the "Initial Topo Cleanup" portion of this manual

Follow the same steps that were followed when doing an Initial topo cleanup. Many steps may be skipped depending on the type of information in the Topoadd# file.

ADDITIONAL TEXT CLEANUP

Determine Direction of Proposed Alignment

It should be apparent which way alignment is going to be laid out from the current Topo and Text drawings. Rotate accordingly.

Step One: Open the Textadd#.dgn (From the Topo Folder)

Step Two: Reference Topoadd#.dgn

Select **File > Reference(DOT)>Attach**. Browse to the **Topo** folder if necessary and select **Topoadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method. Repeat this process for the **Topo.dgn** and **Text.dgn** drawings. Shut off the display of **Topo** and **Text** unless you need to see the "big" picture.

Step Three: Refer to Step 3 through Step 11 in the "Initial Text Cleanup" portion of this manual

Follow the same steps that were followed when doing an Initial text cleanup.

BLENDING NEW TOPO AND TEXT WITH OLD

General Information – Blending Tips

Topoadd1 and Textadd1 features take precedence in the Topo file, therefore, most of the work will be done in the **topo.dgn** file. Edit topo.dgn and text.dgn to accommodate the new topography (topoadd1.dgn and textadd1.dgn) to be merged.

Use a combination of MicroStation's tools to accomplish the task of "blending" the updated Topography with the **Topo.dgn** and the **Text.dgn** file. The areas of additional survey should stand out from the previous surveys if you use *Level Symbology*.

Aerial Mapping Projects

Part One: Open Topo.dgn – Attach Topoadd#

Open the **Topo.dgn.** Select **File>Reference (DOT)>Attach** from the *Main Menu.* Browse to the **Topo** folder if necessary and select **Topoadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method.The **Topoadd#.dgn** takes precedence in the drawing. This will replace any Mapping Survey elements that exist in the topo.dgn. There should be a boundary element around the additional ground survey elements.

Part Two: Place Fence By Element

Select the *Place Fence* tool. Change *Fence Type* to **Element.** Set *Fence Mode* to **Clip.** Click on the boundary element. The element will highlight indicating the fence was placed.

Part Three: Delete fence Contents

Select the *Delete Fence Contents* tool. Set the *Fence Mode* to **Clip.** Click in your view to *Accept* the command. This should remove the old elements that were picked up through Aerial Mapping methods to make room for the newly surveyed information.

Adjust Colors for Easy Editing - Level Symbology (Optional)

Adjusting colors of the drawings will make it easier to distinguish the old Topography and the updated Topography. Adjust colors to your personal preference. You may want to follow the same steps outlined below for the topo.dgn, text.dgn, and the Topoadd#.dgn, so while in that drawing, your colors are the same throughout all of the files you need to edit. The example below is adjustments to make while in the topo.dgn.

Part One: Open Topo.dgn and Attach Topoadd#.dgn and Textadd#.dgn

Open **topo.dgn** from the \topo folder. Select **File > Reference(DOT)>Attach**. Browse to

the **Topo** folder if necessary and select **Topoadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method. Repeat this process for the **Textadd#.dgn** drawing.

Part Two: Open Topo and Turn On Level Symbology

From the Main Menu, select **Settings>View Attributes (Ctrl + B).**

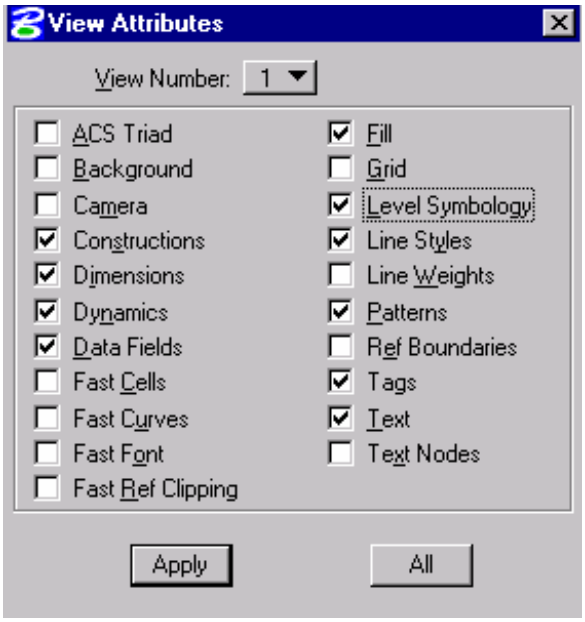


Figure 3-26: View Attributes using Level Symbology

Place a checkmark in the *Level Symbology* box (Figure 3-26). Hit **Apply.**

Part Three: Assign Colors to the Active Design File (i.e. Topo)

Open the **Settings>Level>Manager** dialog from the Main Menu.

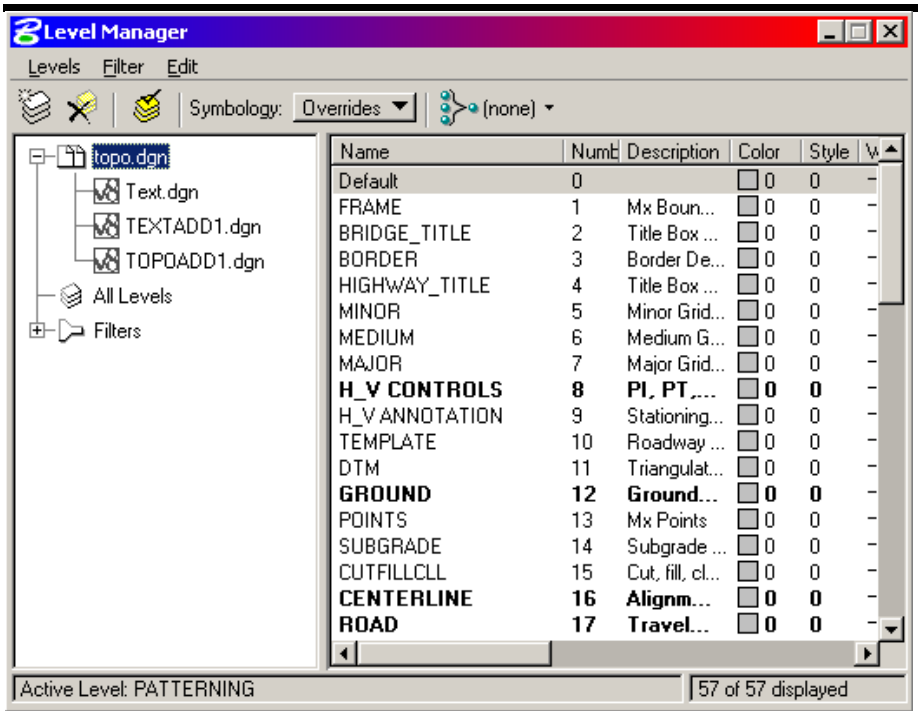


Figure 3-27: Level Manager dialog

In the leftmost window, click to highlight *Topo* (Figure 3-27) which is the active file you are in. *Right-Click* in the rightmost window and pick *Select All* (Figure 3-28). All *Levels* will highlight (Figure 3-29).

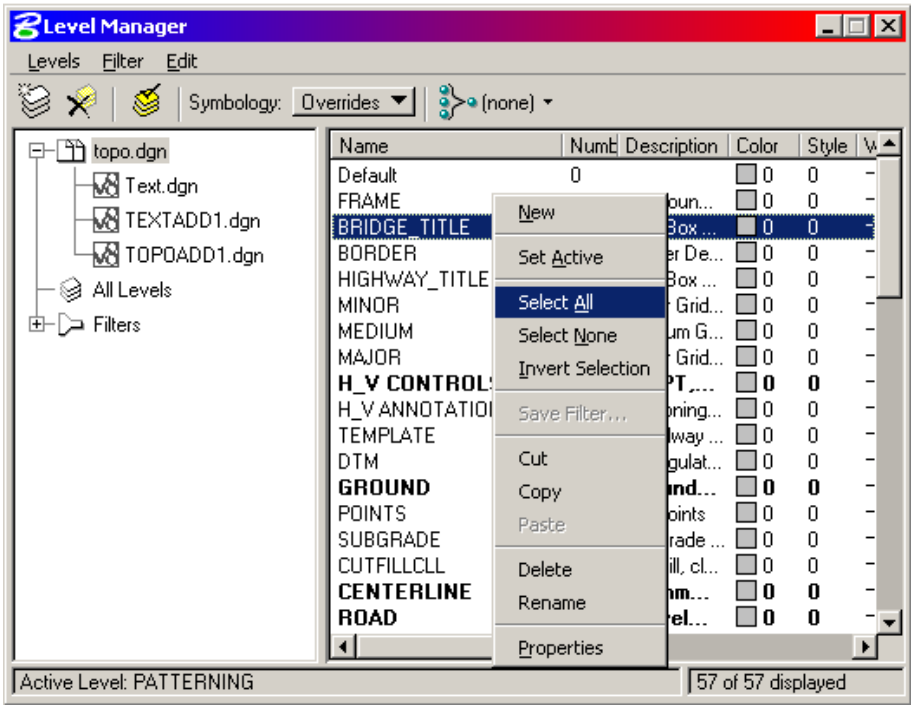


Figure 3-28: Right Click and select Select All

Right-Click again and select *Properties (*Figure 3-29*).*

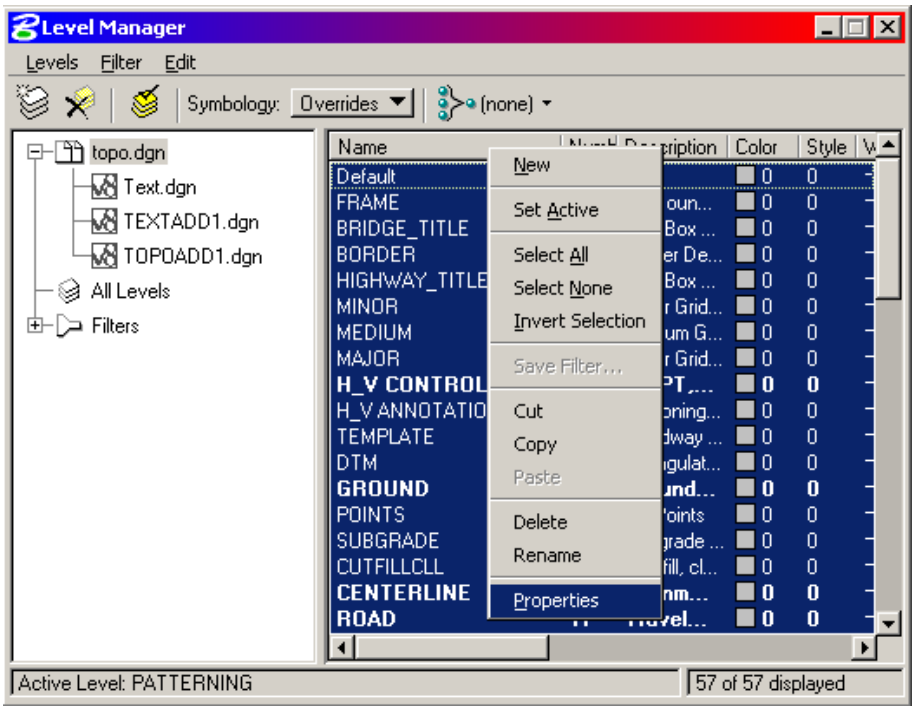


Figure 3-29: Right Click and select Properties

In the *Level Properties* dialog, adjust the *Symbology Overrides* to look like the dialog in Figure 3-30. (Ignore the *Symbology: By Level* area.) Hit *OK*.

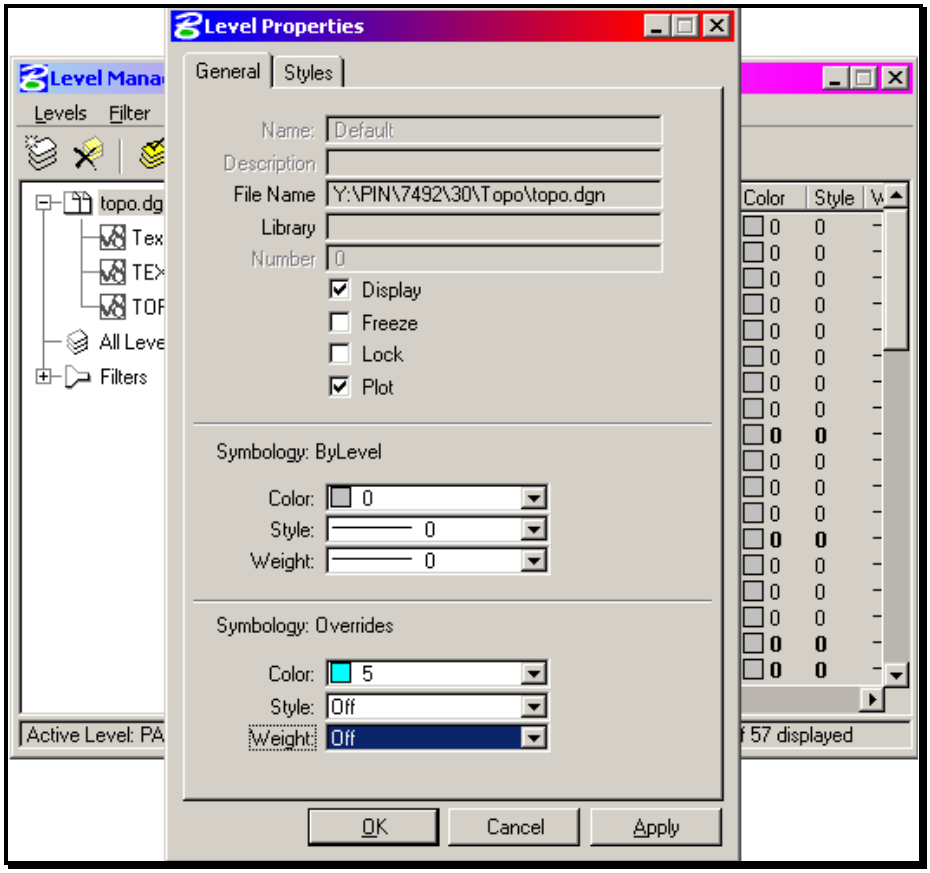


Figure 3-30: Symbology Overrides section of Level Properties

Part Four: Repeat for Text.dgn

Repeat the same process for the text.dgn. Be sure to select the **text.dgn** on the left side of the dialog to display its levels. If you don't see the text drawing, expand the tree by clicking the "+" sign next to topo.dgn. Use the same color you used for topo.

Part Five: Assign Colors to the Topoadd#

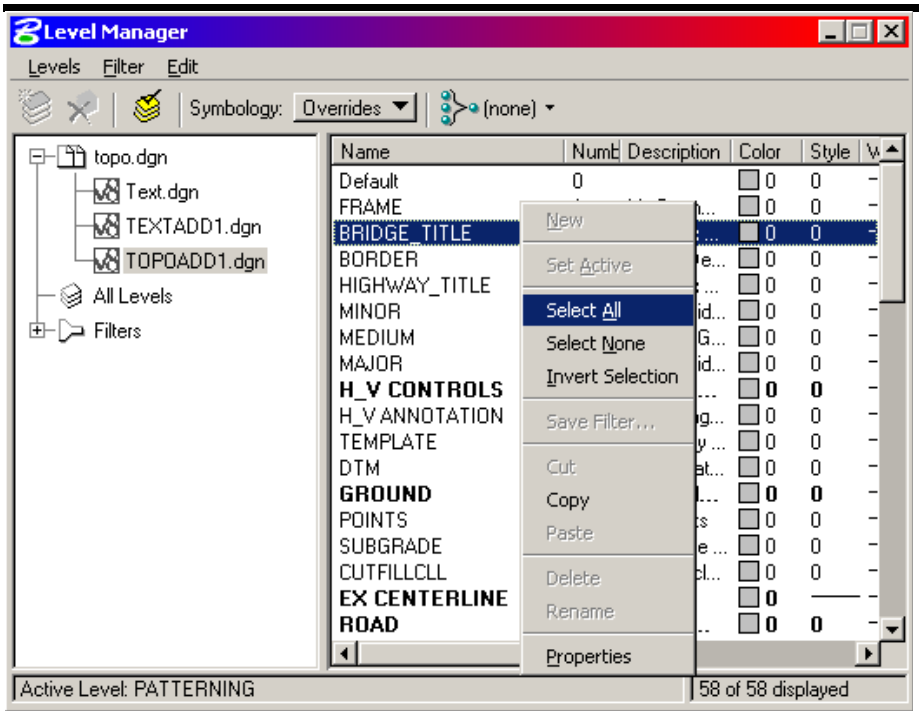


Figure 3-31: Right Click and pick Select All

In the leftmost window, click to highlight *Topoadd1.dgn. Right-Click* in the rightmost window and pick *select all* (Figure 3-31). All *Levels* will highlight.

Right-Click again and select *Properties.*

In the *Level Properties* dialog, adjust the *Symbology Overrides* to look like the dialog in Figure 3-32. (Ignore the *Symbology: By Level* area.) Hit *OK.*

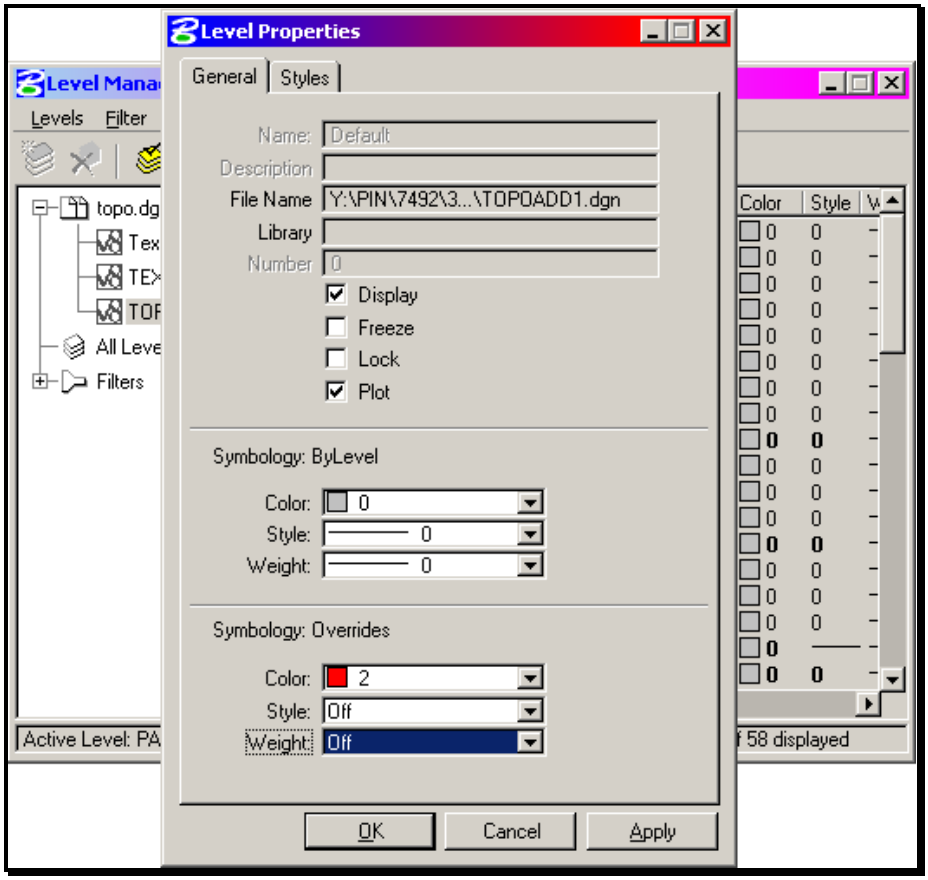


Figure 3-32: Symbology Overrides section of Level Properties

Part Six: Repeat for Textadd#.dgn

Part Seven: Refresh View

Click on the paintbrush in the *View Controls* tools to *Refresh* the view.

Part Eight: Save Settings

From the Main Menu, select **File>Save Settings.**

File Swapping (Handy Tip - Optional)

While editing the **Topo** file, you may need to swap back and forth between it and the **Text.dgn** and/or the **Topoadd1.dgn**. Try using **File>Reference(DOT)>HotSwap.** Follow prompts as the macro takes you to the element you select in any of the reference files you have attached. This gives you the capability to edit it. Also, use **File>2 (Alt+F+2)** to swap to the file you just came from.

Highlite Display of Reference Files (Optional)

In the *Reference File* dialog, set your *Hilte Mode* to **Hilite.** Select a reference file to hilite it.

Update the Reference File Sequence (Optional)

Some people may want to change which file is displayed on top of which file. In the *Reference File* dialog, select **Settings>Update Sequence.** This determines which file is displayed first.

MERGING NEW TOPO AND TEXT WITH OLD

Step One: Open Topo.dgn and Attach Topoadd#.dgn

Open **topo.dgn** from the \topo folder. Select **File > Reference(DOT)>Attach**. Browse to the **Topo** folder if necessary and select **Topoadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method.

Step Two: Merging Topoadd# File

Part One: Select Reference File to Merge

Once the Topo file has been edited to allow for incorporation of the new topography, open the **File>Reference(DOT)>Dialog.**

From the *Reference File* dialog, select the **Topoadd#.dgn** file. Then select **Tools>Merge Into Master.** Following the prompts, click in your view window. This dialog will come up (Figure 3-33) warning you that you are about to merge the Reference file into your current file.

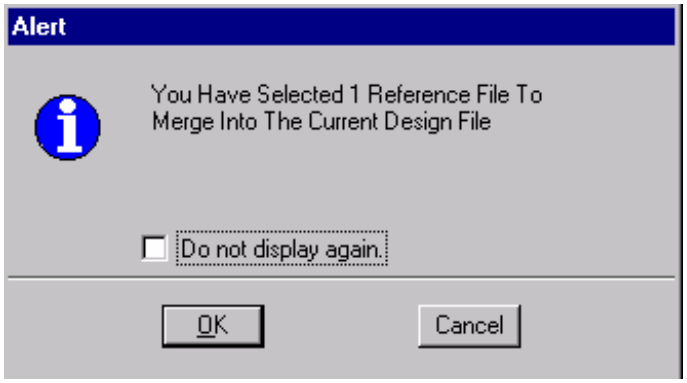


Figure 3-33: Merging Reference File Alert

If everything looks good, click OK to proceed.

Hit *Refresh.*

Part Two: Adjust and Save Changes

Rotate Window 1 back to a top view. Click on *Rotate View* and set the *Method* to **Top**. Click in the view to accept the new rotation.

If *Level Symbology* was used, select **Settings>View Attributes** and uncheck *Level Symbology*. Hit *Apply*. Close View Attributes Window.

Select **File>Save Settings**. Exit MicroStation.

Step Three: Open Text.dgn and Attach Textadd#.dgn

Open **text.dgn** from the topo folder. Select **File > Reference(DOT)>Attach**. Browse to the

Topo folder if necessary and select **Topoadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method.

Step Four: Merging Textadd# Files

Part One: Select Reference File to Merge

Once the Text file has been edited to allow for incorporation of the new text, open the **File>Reference(DOT)>Dialog.**

From the *Reference File* dialog, select the **Textadd#.dgn** file. Then select **Tools>Merge Into Master.** Following the prompts, click in your view window. This dialog will come up (Figure 3-34) warning you that you are about to merge the Reference file into your current file.

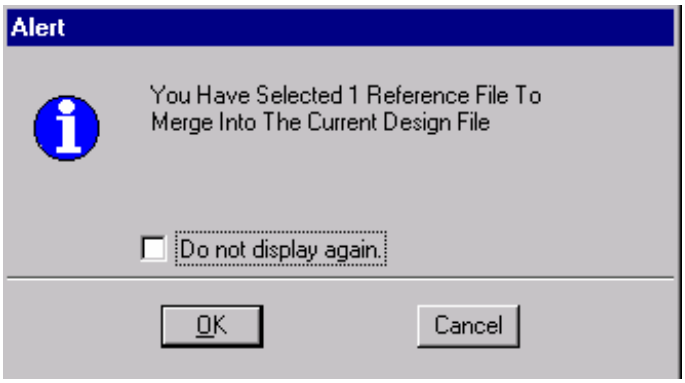


Figure 3-34: Merging Reference File Alert

If everything looks good, click OK to proceed.

Hit *Refresh.*

Part Two: Adjust and Save Changes

Rotate Window 1 back to a top view. Click on *Rotate View* and set the *Method* to **Top**. Click in the view to accept the new rotation.

If *Level Symbology* was used, select **Settings>View Attributes** and uncheck *Level Symbology*. Hit *Apply*. Close View Attributes Window.

Select **File>Save Settings**. Exit MicroStation.

Step Five: Moving Topoadd# and Textadd#

Using Windows Explorer, move the **Topoadd#.dgn** and the **Textadd#.dgn** files you just edited and merged from the **Topo** folder to the **ADDSDONE** folder located in your project's **Topo** folder.

- If Topoadd and Textadd drawings still exist in the **Topo** folder, this should tell a user that the clean up and merging is not yet complete.

Step Six: Add Note to Cleanlog.txt File!

Follow steps previously outlined in this document. Add a note saying that the two files have been merged.

- Regional employees make changes to this file on the Y: drive.

Step Seven: Copy Contents of Topo folder to Y:drive (Regional Employees)

If you are a Regional Employee or did the cleanup on your C: or D: drive, copy the contents of the Topo folder on your hard drive to the Y: drive Topo folder of your PIN number. As in similar procedures outlined in this manual, use the **Edit>Copy** and the **Edit>Paste** commands in Windows Explore.

WETLAND SURVEY CLEANUP

GENERAL INFORMATION

Standard Naming

The department has a standard naming convention for drawing files. The main reason for this is that many of our standard *plan view* type drawings for the department have the existing topography information referenced into them by default. This default reference only works when the files are named correctly and when they exist in the correct location.

Please follow procedures outlined below to adhere to these standards. The standard file names for existing Survey information residing in the **Topo** folder are Topo, Text, Contours, Points and **Wetlands**. These are the only five files that should permanently live in the **Topo** folder. Click this link for a complete list of MDOT Standard File Names or visit the website at www.maine.gov/mdot/cadd-support/microstation/std_filename.php.

Preserving Original Files

The Survey\Msta Folder is where the "Original" Survey files are stored. The folder will act as the topographical history for any given project. A user can open the folder and tell what was done for original survey, and all subsequent "survey adds". The folder is Read-Only to everyone except for the Survey Editors, therefore, MicroStation Survey clean up will be done in the **Topo** folder. If network speed is an issue because of proximity to the server, then copy the necessary files locally.

✓ *Regional Office users should refer to page12-1: Regional Workflow documentation for working with files locally. Please consult CADD Support for assistance.*

The End Result

The end result is to make the **wetlands.dgn**, which exist in the **Topo** folder, a combination of all wetlands lines and text for the project. This would leave no question as to which drawing needs to be referenced to display all of the cleaned up wetlands for the project.

INITIAL WETLANDS CLEANUP

Quick Punch List

- Copy files from Survey/MSTA to Topo folder
- Rename files
- Cleanup Files
- Flatten Files
- Add note to Cleanlog.txt file

♫ This punch list is to give an overview of what is to be done with original wetlands file. If the wetlands are needed prior to the cleanup, copy the file to the topo folder and rename it.

Step One: Open Windows Explorer

Open Windows Explorer **(Start>Programs>Accessories>Windows Explorer)** and browse to your project on the y: drive.

♫ **Regional Offices**: Copy the project folder to your local C:\PIN or D:\PIN folder and continue with the steps in this document, substituting your C: or D: drive where the document says Y: drive.

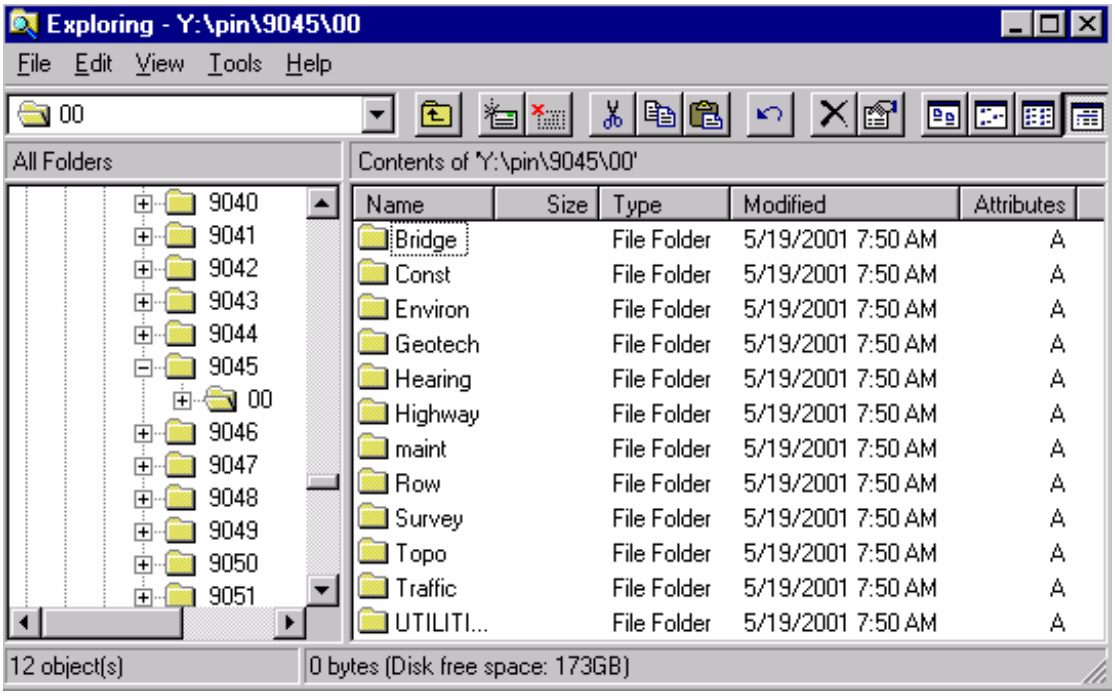


Figure 3-35: Browse to your PIN's topo folder

Step Two: Open the Topo Folder

In the example Figure 3-35, double click the Topo folder to display its contents. This folder should not have a **wetlands.dgn** file in it. If it does, skip the next step.

ⓘ *If this folder already contains files, someone may have started Wetlands cleanup on this project. Do not overwrite this file with the next step. Open the Cleanlog.txt file to see if there are any "cleanup" notes. Skip to Step Four: Open MicroStation.*

Step Three: Open the Survey\MSTA Folder - Copy Files to Topo Folder

Part One: Browse to Survey\MSTA

With Windows Explorer still open, browse to the Survey\MSTA folder, displaying its contents in the rightmost window.

Part Two: Select Files

Select the **origwetlands.dgn.** If there have been additional wetland areas added to this project (i.e. wetlandsadd1.dgn) and no cleanup has been done on any of it, select these also.

Part Three: Copy

From the Main Menu, select **Edit>Copy** (Figure 3-36)**.**

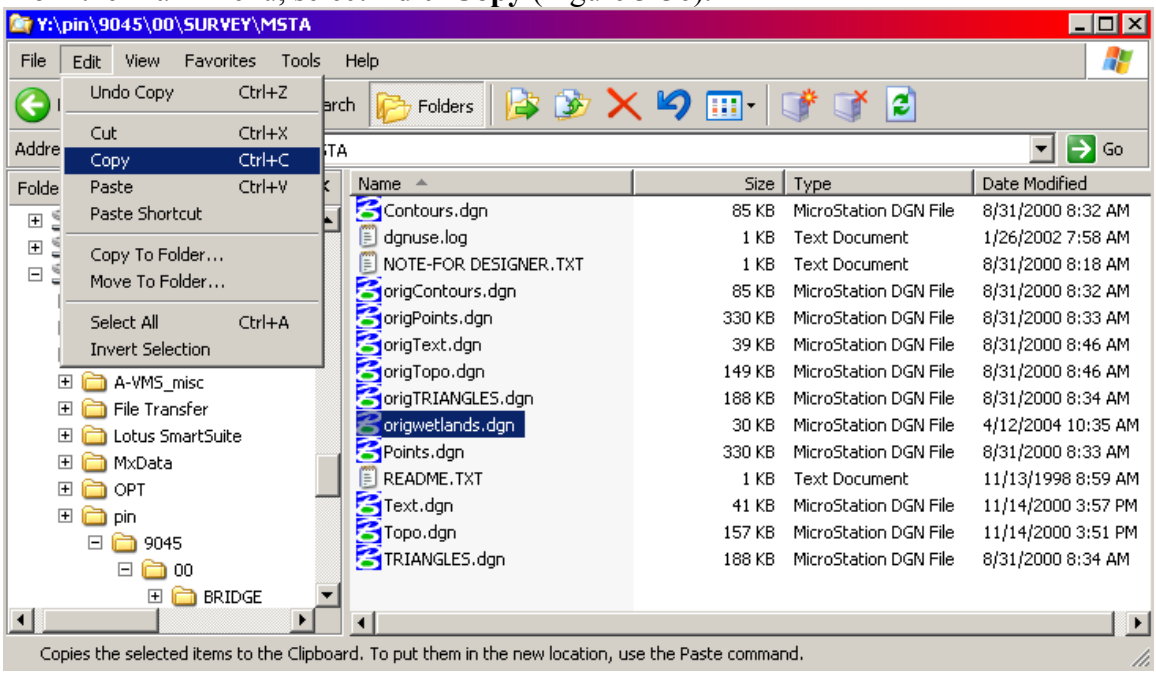


Figure 3-36: Copy origwetlands.dgn from the Survey\MSTA folder

Part Four: Paste

Click on the **Topo** folder. From the Main Menu select **Edit>Paste** (Figure 3-37)**.**

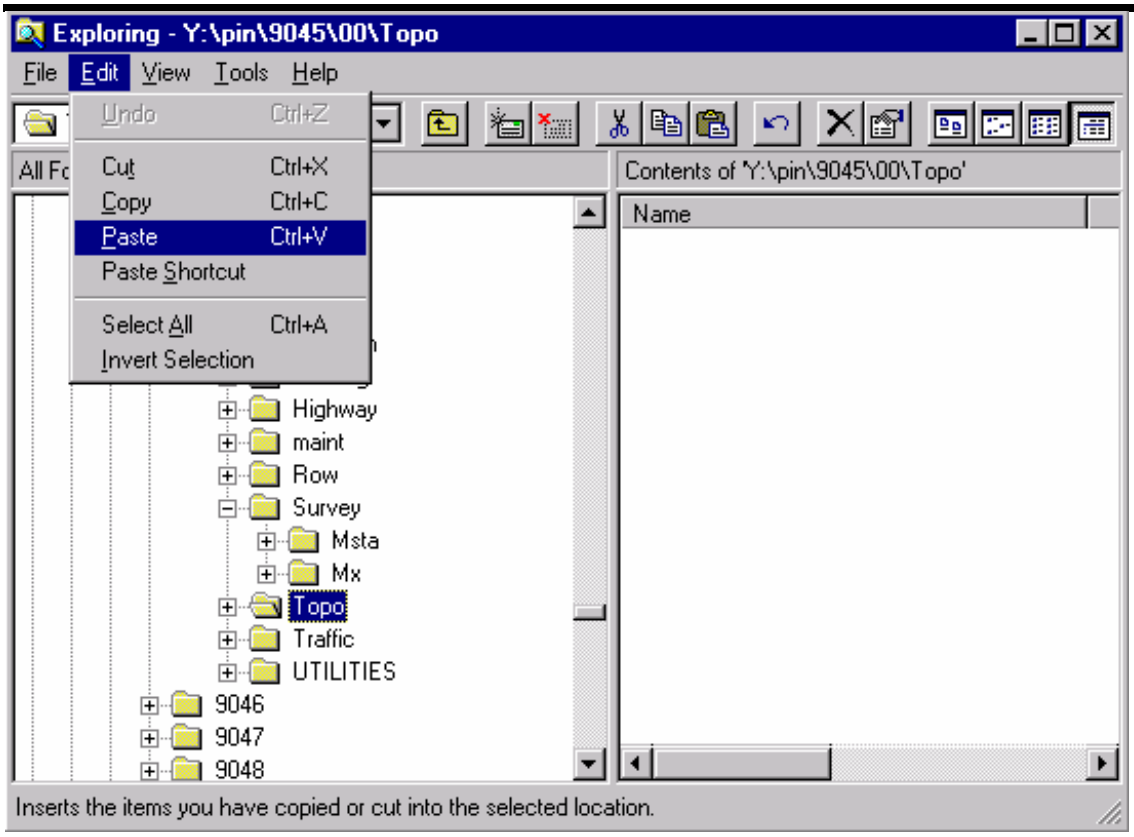


Figure 3-37: Paste origwetlands.dgn into the Topo folder

Part Five: Rename Origwetlands

Select **Origwetlands.dgn.** From the Main Manu, select **File>Rename.** Begin typing the new name, which is **wetlands.dgn.** Hit Enter to accept this name.

Part Six: Add Notes to Cleanlog.txt File!

As a courtesy to others, always add a note to the **Cleanlog.txt** file located in the **Topo** directory as progress is made during the cleanup process. Here are a few examples of informative cleanup notes.

03/04/02 John Doe - Started **wetlands.dgn** cleanup.

03/07/02 John Doe - Finished **wetlands.dgn** cleanup.

03/07/02 John Doe - Started/Finished **wetlands.dgn** cleanup.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you unless you have your project Briefcased. In this case, be sure to synchronize this file also.

Step Four: Open MicroStation

Open MicroStation by clicking the Icon on your desktop. When the *MicroStation Manager* window appears, pick your project from the *Project* pull down. Browse to the **Topo** directory by double clicking your project number's decimal folder (i.e. pin\9045**"00"** folder), then double clicking the "Topo" folder.

♫ If the project pull down does not take you to your project, contact your CADD Support personnel.

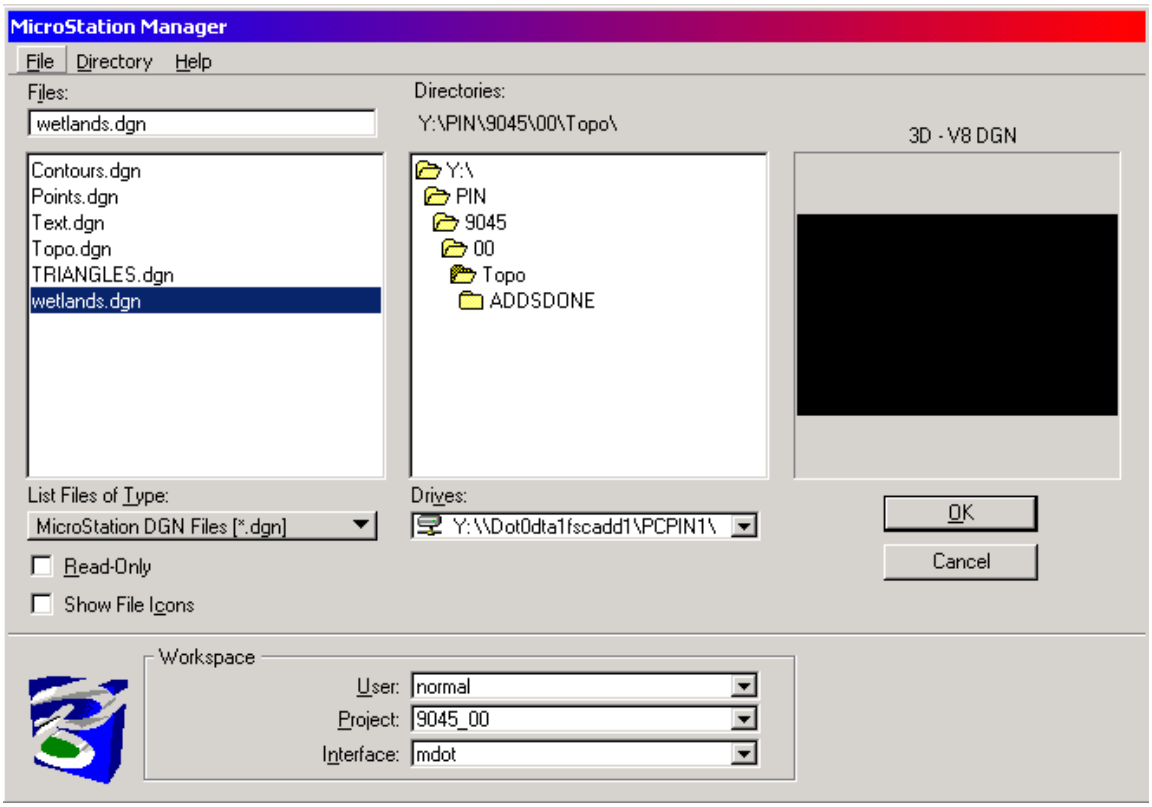


Figure 3-38: Select wetlands.dgn from your list of available files

You should see your drawing on the left. Select **wetlands.dgn** (Figure 3-38) and click **OK.** Once the file is open, click *Fit View* from *Window1's* view control toolbar. Close *Window2, Window3and Window4* if necessary and maximize *Window1*.

ⓘ ***If the Topo directory is empty, go back to Step Three and copy the file(s).***

Step Five: Attach Reference Files

The wetlands drawing doesn't have any reference files attached by default. Even though you can only edit one file at a time, it is helpful to have other drawing displayed. Select **File>Reference(DOT)>Attach** from the Main Menu. Select the **alignments.dgn,** browsing to the **Highway** or **Bridge\MSTA** folder if necessary. Click OK. It is not necessary to enter a *Logical or Description.* Attach by *Coincident World* method.

ⓘ ***If an alignments.dgn file is not found, take necessary steps to determine who the Project Manager is for the project. Ask which direction that they anticipate the alignment to be laid out. If this is unknown, do not cleanup this drawing until it's***

been established. This will determine which direction you adjust the linestyles for readability.

Step Six: Flatten Your Drawing

From the Main Menu, select **Macros>Flatten.** Click **OK** to accept "0.000" as the desired elevation to flatten to. Click anywhere in the view window to accept the command. Fit your view.

Step Seven: Adjust View and Save Settings (Optional)

Rotate the View Window

If your project is not running from left (West) to right (East), you may want to rotate your view window so that the majority of the project is horizontal across your screen. Select **Rotate View** from Window 1's *View Controls* (Figure 3-39).

Figure 3-39: Rotate View tool

When the *Rotate View* dialog appears, set method to 3 points. **First point (0/0),** click on screen where you want the lower left corner of the new window to be. **Second point (+X direction),** click where you'd like the bottom right corner of the view window to be. **Third point (+Y direction)**, click to define the top left corner of the view window (Figure 3-40).

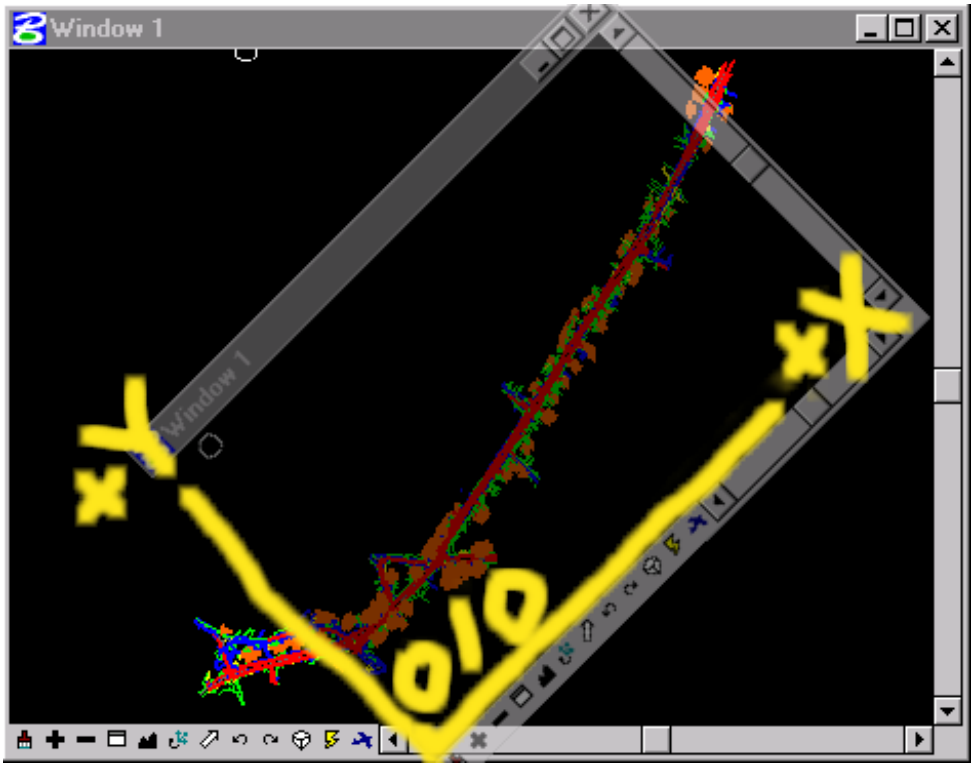


Figure 3-40: Rotating View with 3 point method

- Rotate View as often as necessary to get the majority of elements horizontal in your view. It is best **not** to snap to elements in your file while performing this command, unless you lock your "Z" prior to doing so **(Macros>Set/Lock Z).** A slightly skewed view may result if the 3 elements snapped to are at different elevations.

Graphic Group Unlock

Disable Graphic Groups by selecting **Settings>Locks>Graphic Groups** from the Main Menu or click the padlock on the status bar and click Graphic Groups to remove the checkmark.

Save Settings

Select **File>Save Settings** to save these settings as your default view for the file.

- If *Save Settings* is grayed out, this means that your current preferences are to save settings on exit. It will accomplish what this step is intended to do.

Step Eight: Reverse Wetland Linestyle Direction

Objective

Wetland lines have text imbedded in the linestyle. Ultimately, we want the text to be legible when the plans are cut into sheets. The text should be readable from left to right in accordance to the direction of the alignment.

Part One: Click the Reverse Direction Tool 

The *Reverse Element Directions* tool is located in the *Modify* toolbox or from the *Main Menu* select **Qualities>Change>Directions**. Click the tool and follow the prompts in the bottom left status bar.

Part Two: Select the Line (Identify the Element)

Click on the line with a left mouse button. An arrowhead will appear displaying the current direction of the line.

Here is an example of a wetland line before clean up (Figure 3-41). Notice only part of the line reads correctly.

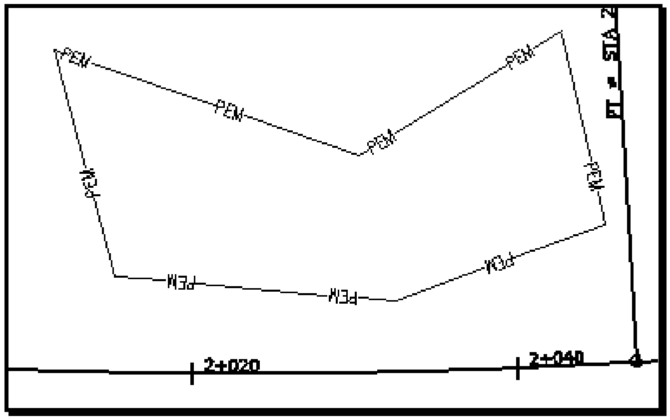


Figure 3-41: Example before reversing elements

Part Three: Define Start of the Line

The prompt is telling you to click anywhere near the opposite end of the line that needs reversing. This will make the other end the starting point. As long as the click on the screen is beyond the midpoint of the line, it will reverse directions.

Here is an example of a wetland line after clean up (Figure 3-42). Notice that all portions of the line read correctly. A partial delete had to be done to get accomplish this.

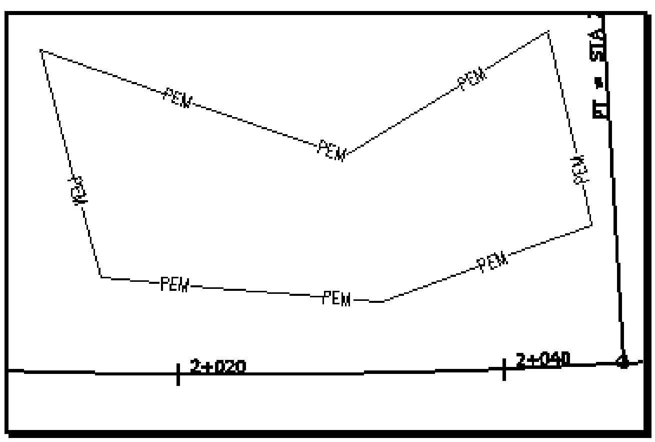
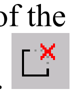


Figure 3-42: Example of a cleaned up wetland line

♬ You may have trouble reversing closed elements (shapes, blocks, etc.) and elements that go in both directions. Try deleting a small portion of the element using the *Delete Partial* tool which is located in the *Modify* toolbox.  Click on the Partial Delete Tool. Click on a vertex of the string, then without moving the cursor away from the center of AccuDraw's compass, click where you originally clicked forming a partial deletion of the line that is unnoticeable.

Step Nine: Moving Vertices

You may need to adjust wetland lines because the line may not have been drawn correctly. Use the *Modify Element* tool to move a vertex from one location to another.

Step Ten: Adjusting Text Height and Width

Adjust the Height and Width of all text elements in the file. No other adjustment to the attributes needs to be made.

Part One: Select Text

From the Main Menu select **Edit>Select All.** All of the text should highlight. It is OK that the lines in the file are also selected.

Part Two: Change Text Attributes

From the Main Menu select **Qualities>Change>Text>Size.**

Part Three: Set Text Height

25' = 1 inch (300 scale) US Customary Projects: Change the Line Height to 2.46.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Height to 4.92.

250 scale Metric Projects: Change the Line Height to 0.625.

500 scale Metric Projects: Change the Line Height to 1.25.

Part Four: Set Text Width

25' = 1 inch (300 scale) US Customary Projects: Change the Line Width to 1.96.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Width to 3.92.

250 scale Metric Projects: Change the Line Width to 0.500.

500 scale Metric Projects: Change the Line Width to 1.00.

Part Five: Set Line Spacing

25' = 1 inch (300 scale) US Customary Projects: Change the Line Spacing to 1.64.

50' = 1 inch (600 scale) US Customary Projects: Change the Line Spacing to 3.28.

250 scale Metric Projects: Change the Line Spacing to 0.417.

500 scale Metric Projects: Change the Line Spacing to 0.834.

Part Six: Click to Accept the Command

Click in *Window 1* to accept the command and the current selection set. All of the text will change size.

Part Seven: Select None

From the Main Menu, select **Edit>Select None.**

Step Eleven: Rotating Text

General Information

It is up to the discretion of the individual or their unit as to rotate the wetland flags or not. Since other units will most likely shut off the wetland "flag" text, it's important to know that you are doing this for your biologist's checking purposes only.

Most text should be rotated to read from west to east across your screen (parallel to centerline), and/or from south to north (perpendicular to centerline). In tight situations, a 45-degree rotation is acceptable.

All rotated text, if perpendicular to the centerline, should be legible from the right side of the plan sheet. This enables a person to read the text from a stapled set of plans with the most ease.

Global vs. Individual Rotation Introduction

All text in the wetlands.dgn comes in at the same angle.

One pass **Globally,** using selection sets through the entire project will align the majority of text elements correctly. The text that it doesn't correct will most likely be an even 90-degree increment away from being correct.

ⓘ ***This method works best on the straight portions of your project. Areas on a curve can be dealt with by using smaller selection sets or simply by using individual rotation methods.***

Utilize the **Individual rotate** command for text blocks that need final tweaking. Intersections of Side Roads require a bit more attention in this respect.

Global Rotation: Select Text Blocks to Rotate

Identify a portion of your project that is fairly straight. If your project is one big curve use small selection sets so that global rotation will be effective.

Using the Power Selector - The *Power Selector* works well for selecting single or multiple text blocks because of the various selection methods. You can also add and subtract from your selection set easily. Choose *Shape* method and choose the "**+**" in the mode field (Figure 3-43).

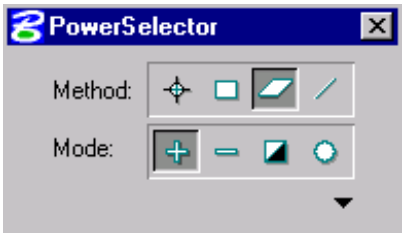


Figure 3-43: Power Selector set to shape

Left click to form a shape around the text blocks you want to rotate, returning back to the beginning point to close the shape. You should see them highlight.

Click the **Rotate** tool from *Main* tool frame. In the Tools Setting box, click the down arrow to *Show Extended Information (*Figure 3-44*).* Place a checkmark in the *About Element Center* box of the dialog box (Figure 3-45).

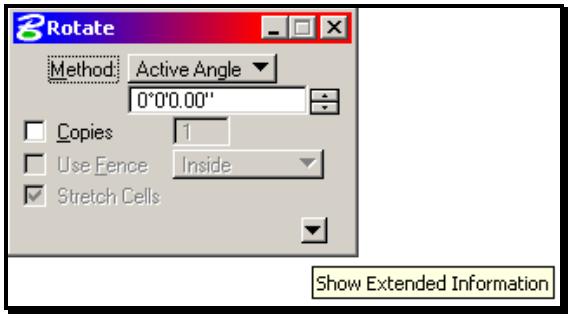


Figure 3-44: Rotate Element's Show Extended Information button

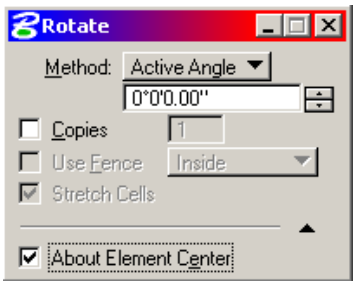


Figure 3-45: Rotate Element's About Element Center box

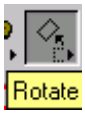
Set *Method* to **2 Points.** Click on the screen and you are dynamically rotating the text blocks around their origins. Move your cursor around the *AccuDraw's* compass until the majority is rotated correctly. Click to *Accept* this rotation. Right Click to stop rotating.

♫ To create new selection sets, hit your "spacebar" to clear the current selection set (while focus is in *Power Selector* dialog) and place a shape around the new set of text blocks.

✓ *Refer page2-28 for more information on the Power Selector tool.*

Individual Rotation

To perform individual rotations, rotate the text block around the point established by the Survey Crew, which is also the center/origin point of the cell it identifies.



Click the **Rotate** tool from the *Main* tool frame. In the *Tools Setting* dialog, click the down arrow to *Show Extended Information.* Place a checkmark in the *About Element Center* box of the dialog box. Click near the text block (the actual pivot is set to the text block's origin based on the tool setting). The text block will rotate dynamically as you move the mouse around *AccuDraw's* compass. Left click again to define the amount of rotation. Right Click to stop rotating the text block.

Step Twelve: Moving Text

After text is rotated, it may also require moving. Use common sense when moving items nearest the vertex that they describe so the plan "looks good". Use the *Move Element* tool to move single text blocks.

- Snapping to text (middle mouse) will show you what the text is describing. This works well in areas where text is on top of text making it difficult to distinguish. Identify what the text is describing and move it to a better location until all elements are clearly identified.

Step Thirteen: Add Note to Cleanlog.txt File!

Make a comment to the Cleanlog.txt to let people know that the wetlands have been cleaned up.

- Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

ADDITIONAL WETLANDS CLEANUP

Quick Punch List

- Copy wetlandsadd# file(s) from Survey/MSTA to Topo folder
- Cleanup Files
- Flatten Files
- Blend the two Files
- Merge file into wetlands.dgn
- Add note to Cleanlog.txt file

♫ This punch list is to give an overview of what is to be done with additional wetland files. If the wetlandsadds are needed prior to the cleanup, copy the files to the topo folder temporarily.

♫ Supply your wetlandsadd number where you see a "#" sign.

Step One: Copy Wetlandsadd#

Copy wetlandsadd#.dgn from the **Survey\Msta** folder into the **Topo** folder using Windows Explorer.

♫ Refer to page 3-53 to see how it was done in the Initial Wetlands Cleanup portion of this manual.

Step Two: Add Note to Cleanlog.txt File!

As a courtesy to others, always add a note to the **Cleanlog.txt** file located in the **Topo** directory as progress is made during the cleanup process. Here are a few examples of informative cleanup notes.

03/04/02 John Doe - Started **Wetlandsadd#.dgn** cleanup.

03/07/02 John Doe - Finished **Wetlandsadd#.dgn** cleanup.

03/07/02 John Doe - Started/Finished **Wetlandsadd#.dgn** cleanup.

♫ Regional Office employees that copy the project locally should browse to the Y:drive PIN folder and make the edits to the network copy of the Cleanlog.txt so that other employees can check the status of the project. If you make the comments to your local Cleanlog.txt file, no one else can see this but you.

Step Three: Open Wetlandsadd#

Click Bentley (MicroStation) icon and pick your *Project* from the pull down. Browse to the **Topo** folder. Select **Wetlandsadd#.dgn** and click OK.

♫ If the project pull down does not take you to your project, contact your CADD Support personnel.

Step Four: Attach Reference Files

Select **File>Reference(DOT)>Attach** from the Main Menu. Select the **Wetlands.dgn,** browsing to the **Topo** folder if necessary. Click OK. It is not necessary to enter a *Logical* name or description for any attachments to this file. Attach by *Coincident World* method. Select the **alignments.dgn,** browsing to the **Highway** or **Bridge\MSTA** folder if necessary. Click OK. Attach by *Coincident World* method.

Step Five: Refer to Step 6 through Step 13 in the "Initial Wetlands Cleanup" portion of this manual

Follow the same steps that were followed when doing an Initial wetlands cleanup.

MERGING NEW WETLANDS WITH OLD

Step One: Open Wetlands.dgn and Attach Wetlandsadd#.dgn

Open **wetlands.dgn** from the \topo folder. Select **File > Reference(DOT)>Attach**. Browse to the **Topo** folder if necessary and select **Wetlandsadd#.dgn.** It's not necessary to enter a *Logical* or *Description.* Attach by *Coincident World* method.

Step Two: Merging Wetlandsadd# Files

Once the Wetlands file has been edited to allow for incorporation of the new wetlands, open the **File>Reference(DOT)>Dialog.**

From the *Reference File* dialog, select the **Wetlandsadd#.dgn** file. Then select **Tools>Merge Into Master.** Following the prompts, click in your view window. This dialog will come up (Figure 3-46) warning you that you are about to merge the Reference file into your current file.

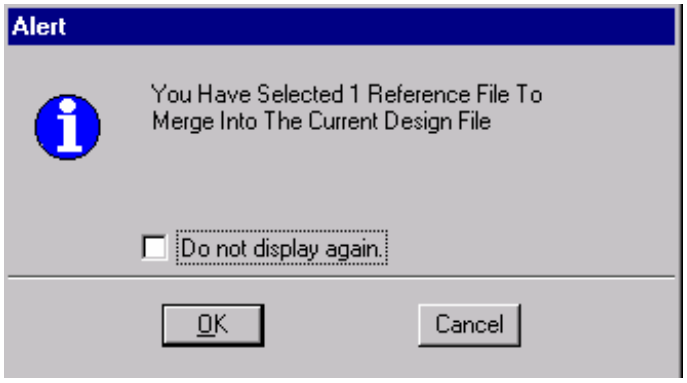


Figure 3-46: Merging Reference File Alert

If everything looks good, click OK to proceed.

Hit *Refresh.*

Step Three: Moving Wetlandsadd#

Using Windows Explorer, move the **Wetlandsadd#.dgn** file(s) you just edited and merged from the **Topo** folder to the **ADDSDONE** folder located in your project's **Topo** folder.

- If Wetlandsadd drawings still exist in the **Topo** folder, this should tell a user that the clean up and merging is not yet complete.

Step Four: Add Note to Cleanlog.txt File!

Follow steps previously outlined in this document. Add a note saying that the two files have been merged.

- Regional employees make changes to this file on the Y: drive.

Step Five: Copy Contents of Topo folder to Y:drive (Regional Employees)

If you are a Regional Employee or did the cleanup on your C: or D: drive, synchronize your files in the briefcase (if one was used) or copy the contents of the Topo folder on your hard drive to the Y: drive Topo folder of your PIN number. As in similar procedures outlined in this manual, use the **Edit>Copy** and the **Edit>Paste** commands in Windows Explorer.